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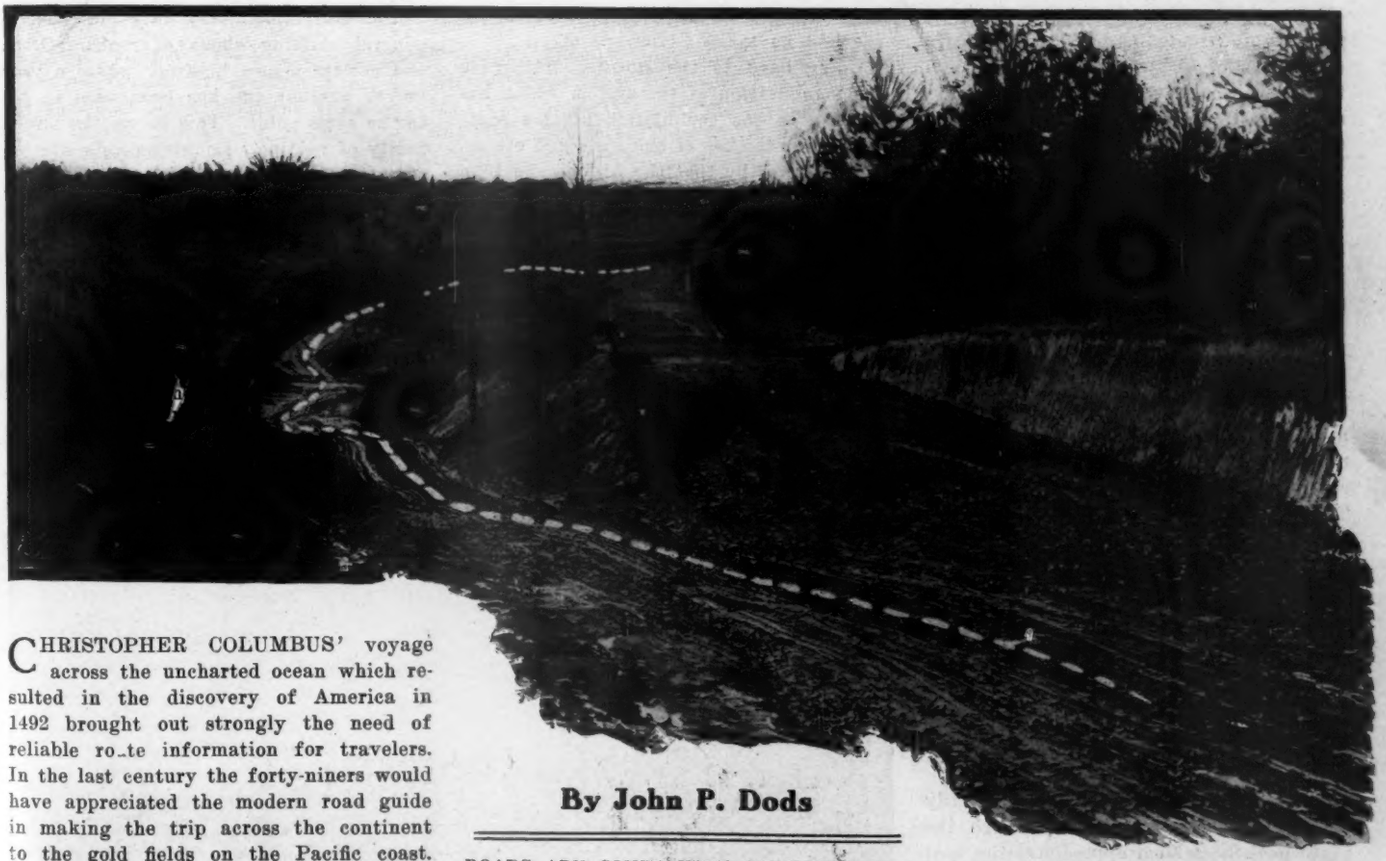
MOTOR AGE

Advancement in Art of Pathfinding

Motoring Has Brought About a Demand for Correct Route Information That Is Being Met Successfully

Task Made Harder by Constantly Changing Roads—Government Gives Examples of Relocations



ROADS ARE CONSTANTLY CHANGING. THIS ILLUSTRATION, FURNISHED BY THE UNITED STATES GOVERNMENT, SHOWS A RELOCATION NEAR GREENSBORO, COLO., DOTTED LINE FOLLOWING THE OLD ROAD IN ALL THE ILLUSTRATIONS

By John P. Dods

CHRISTOPHER COLUMBUS' voyage across the uncharted ocean which resulted in the discovery of America in 1492 brought out strongly the need of reliable route information for travelers. In the last century the forty-niners would have appreciated the modern road guide in making the trip across the continent to the gold fields on the Pacific coast. The pioneers of cycling found that the keynote to a thorough enjoyment of the sport was correct information as to the roads. The motorists, taking up the running where the two-wheelers left off, felt the same need but they did not sit back and wait for time to devise a system whereby they could go from point to point with almost unerring accuracy—they set about finding out for themselves the secrets of the roads that gridiron this great country of ours.

Early Charting of Roads

Early motorists did a good deal of this charting. They garnered all the "it is saids" and the "well I reckons" together and started a crude sort of a system that did fairly well for those who were content to confine their motoring rambles to their immediate vicinities. But the later converts to the sport were not satisfied with this. They wanted to see something of the American continent. They wanted to run from coast to coast,

NEW AND OLD LOCATION AT CUMBERLAND GAP, TENN., NO. 3, SHOWING HOW NEW ROAD AVOIDS A VERY STEEP GRADE

they aspired to bound the United States, they wanted routes through the beautiful Berkshires of the east and they wanted to roam through the picturesque Rockies of the west. They wanted information as to the roads that would enable them to travel with the regularity of an express train and they wanted trails that would lead them through the wilderness if necessary.

This demand for information as to the topography of this country led to a systematization of gathering route matter. Experts invaded the field and through their careful work they have revolutionized motor travel in this country until now there are few towns in the United States which cannot be located and reached by means of the motor guides. Their work is appreciated, for not until one attempts to go from one point to another through strange country does one realize the needs of definite route information—a map showing the towns along the way and the turns and twists of the highways or, better still, data telling where to turn, where to go straight ahead, the good roads and the bad, the hills and the valleys, the landmarks and rivers.

Work of Compilation

When a tourist settles back luxuriously into the tonneau and looks through the route book he seldom appreciates the vast amount of work it took to compile all this information. It's there for his guidance and that's enough for him. He knows nothing of the work done by the pathfinders, the miles and miles traveled by the scouts, the great expense of compiling this information or the system devised for the purpose of accurately shorthanding the data so it could be put into readable form after the scouting trip was finished. The information is there for his use and he takes advantage of it.

Going back to the start, or rather to the inauguration of the system which has resulted in the compilation of this route matter for the use of motorists and others, it is noteworthy that the Automobile Blue Book made its first appearance in 1901, showing the most important routes in New England and adjacent territory. From this small beginning it has grown from one small pocket edition into four good-sized volumes and instead of covering only a limited territory the work has been extended so that the 1911 edition covers nearly every important motoring route in the United States and Canada.

As the advantages of the motor car for country travel became better known the demand for routes increased enormously and in order to supply the demand all sorts of maps and route guides were issued. For the most part the early maps consisted of nothing more than lines drawn between towns and were gotten out without any accurate knowledge of the territory through which they ran as to road directions and conditions. Even today the maps for motoring use show very little improvement as a general thing. Most of them are not only indefinite and inaccurate but are old ones.

America Is Handicapped

In England and in France, where nearly all roads are macadam and have been for years, it is possible to issue maps which will not go out of date for years. Maps also are made practical in these countries because of the thorough manner in which every road is signboarded. In this country the people are just beginning to realize the value of good roads and although the movement is general, it will be years before the standard touring routes will be so improved a map can be made with almost absolute assurance that for a few years at least it will remain the accepted route.

Tourists perhaps may have noticed this general shifting about of roads. Often one notices a new highway where a year before another one has been used to get to the same point. This shows the uncertainty of routing. Country people are becoming modern in that they realize that roads that were good enough for their forefathers are not satisfactory now. Often they do not go as straight as they might; they involve hill-climbing where this could be avoided by skirting the hill. All this is being remedied now and one finds examples of this trend in many places. New roads have been built and old ones abandoned and in each case it is apparent that the change has been for the better. Uncle Sam knows this and his office of public roads of the depart-

HAMBLIN COUNTY, TENN., RELOCATION NO. 1, SHOWING OLD ROAD RUNS INTO A HOLLOW UNNECESSARILY

ment of agriculture has investigated the matter thoroughly. The department has in its possession photographs showing examples of these reconstructed roads and some of the illustrations in this article are from the files of the government.

Relocation of Roads

"It is quite true that road building in this country is in a transitory state at the present time," says Paul D. Sargent, acting director of the office of public roads at Washington. "Especially is this true in those portions of the country where the roads have not been surfaced with stone or gravel, and where the roads were not laid out in section lines by the government. Roads formerly were located, as a general rule, for the benefit of the property owners, but at the present time these roads are being relocated for the benefit of the traveling public.

"The old roads in many parts of the country follow the line fences of the farms, regardless of grades, drainage or direction, but before these roads are surfaced they must be relocated so as to avoid the steep hills.

"Pictures which the government have in its files show this phase of the subject of relocation. No. 1 shows where the old road followed the fence line of the farm down into a deep hollow on a grade of about 15 per cent and then up the hill along the fence on the other side of the hollow on a grade of about 12 or 15 per cent. The new road on the left is level and shorter than the old road. No. 2 shows where the road goes around the hill instead of over it, avoiding two steep grades and making it possible to produce a level road. It very frequently is no further around the hill than it is over, but the road over the hill followed the line fence of the farm, whereas the road around the hill would cut the farm in two.

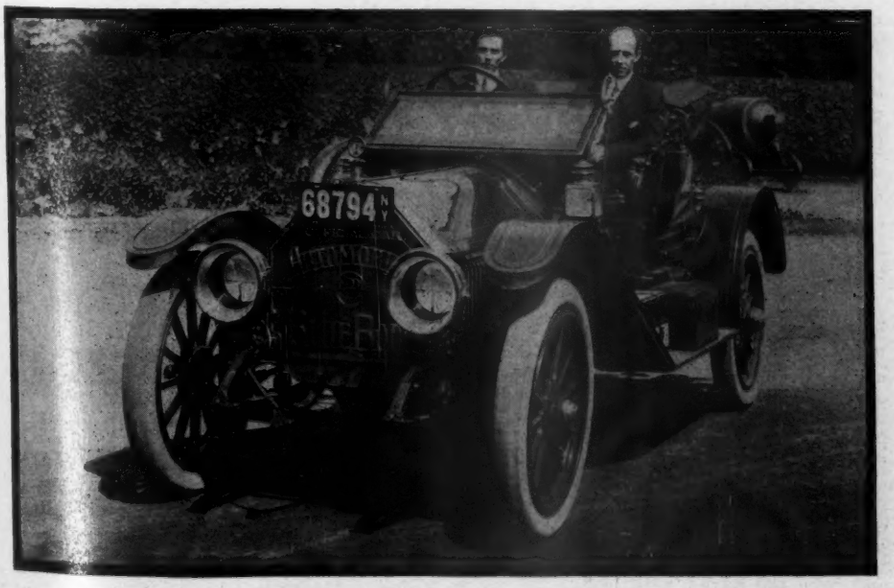
"Another shows where the old road passed over the hills, down into the hollows, and followed the stream bed, this road frequently being subject to overflow and always disagreeable to travel. The new road was located back on the side of the hill above the water level. No. 3 shows a section of the Cumberland gap road which was rebuilt under the direction of this department. The old road has very steep grades but the new road, which practically follows the same route, has grades of not more than 6 per cent, the grades being reduced by developing distance. In other words, the engineer started his grade up the mountain before he reached the mountain, and by a system of loops was able to cross the mountain on grades of not more than 5 or 6 per cent."

NO. 2, RELOCATION NEAR BRISTOL, TENN. NEW ROAD GOES ROUND THE HILL ON LEVEL GRADE, AVOIDING 12 PER CENT GRADE

One other point which most people forget in wondering why maps are not practical as yet in the United States. They have seen maps in England and France and wonder why we cannot have good maps here, but forget not only the fast changing road conditions and other points mentioned above but the size of the United States. To issue maps covering even the northern states east of the Mississippi river would not only cost a fortune but the territory to be covered is so large that the scale would either be too small to show the necessary detail, or if the scale were suitable it would take too many sections to cover even one state. Again, in order to make good road maps accurate knowledge must be had of practically every road in the territory to be covered, and although the government is at present engaged in the work of making a topographical survey of the entire United States, the work is far from being complete, and as it has been under way ever since the organization of the United States geological survey, it is not likely to be completed for many years.

Not having good maps, it became necessary to send cars over the routes desired to procure the information needed.

At first the methods employed in gathering this data were as crude as the early cars, for although representatives were sent out in cars to gather the information for route directions, the idea was more or less a new one and it was not only difficult to know just how to take down the data but also to know what to take. The reader must understand that in order to cover the desired routes each season a fairly good daily average must be maintained. To do this and at the same time not slight the details along the road was the problem.



A BLUE BOOK CAR, SHOWING PROPER MANNER OF EQUIPPING CREW FOR A PATHFINDING EXPEDITION

At first the data was taken simply by writing down very briefly in long hand the necessary details, but this was slow work and only gave route data in one direction; still this is the method which is used even today by the large majority of people who have occasion to gather route data. For Blue Book purposes it soon proved totally inadequate and a scheme was devised for taking all route matter in the form of a sketch showing in their proper relation to the road being traveled all intersecting roads, landmarks, schools, churches, railroad crossings, telephone poles, etc. The sketch-maker must not only have a little idea of drafting but must be able to imagine himself traveling above the road in a flying machine as it were, looking down, in order to get an accurate idea of the angle at which two roads intersect. This may sound simple and unimportant but for brief and clear

NEAR GREENSBORO, N. C., WHERE A RAMB ING ROAD FOLLOWING FENCES IS ABANDONED FOR SOMETHING BETTER

directions it is vital in order that just the roads and landmarks are mentioned in the text that are necessary to accurate directions and none other. This sketch method not only saved time and gave data from which the route could be written in both directions, but allowed the use of symbols to represent all sorts of landmarks and road conditions, and this, too, not only saves time, but is more accurate.

Shorthanding a Route

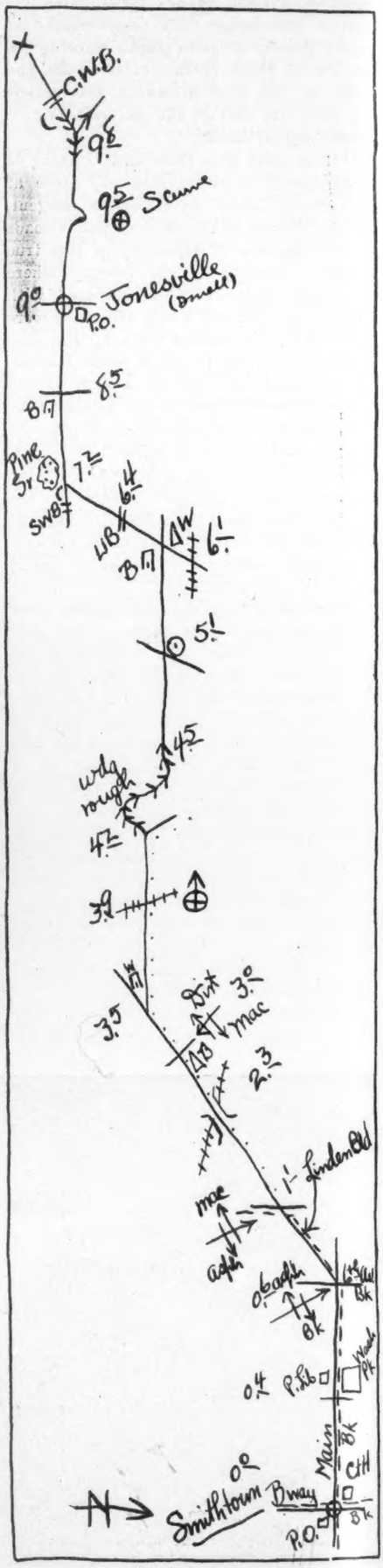
Think of the difficulties of taking down all the necessary data in long hand at some important turn, as in the sketch at mileage (6.1 m) and still not stop the car. The sketch method shows the proper relation to the intersecting roads of each landmark and all of this can be put down easily and quickly in a moving car, while actual writing is rather difficult, especially if the road happens to be a little rough.

Another very important feature about this method is the fact that absolutely nothing is left to memory. Even a stranger who never covered a mile of the route could take one of these sketches and knowing the symbols could read it now or a year hence. This is an essential point, for when a Blue Book crew starts out early in the year it may not return to the office or be able to dictate any route data for months, and after covering thousand of miles it is absolutely necessary that each sketch be most complete and nothing left to the memory.

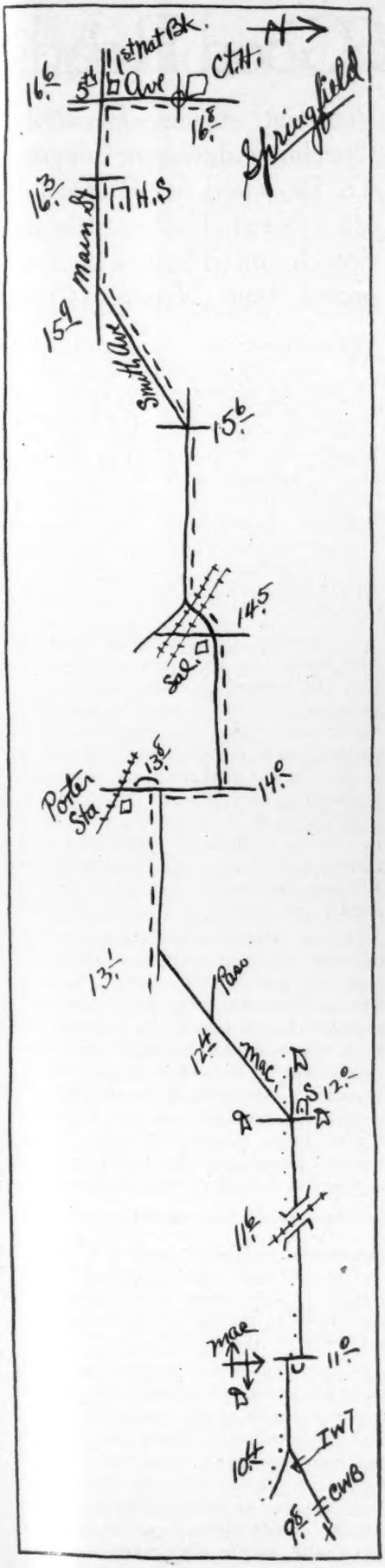
There is a science about taking route matter properly that often is Greek to the uninitiated. This has been discovered by pathfinding parties sent out to blaze trails for reliability runs. The chief scout generally takes his route directions in a laborious manner, writing all directions down in long hand, often missing some of the essential landmarks and finding it no easy matter to make his notes intelligent after he is through. This weakness of the old system has led to the adoption of a scheme, which is used by the Blue Book, which greatly lightens the labors of the pathfinder and at the same time results in superior route matter.

To get a clearer idea of this method of road shorthanding, suppose we consider ourselves in a car starting out to take the accompanying sketch, style A. First we have decided upon the intersection of Broadway and Main streets, with a courthouse on the northwest corner, as the starting point for all routes out of Smithtown. The sketch shows the exact location of the courthouse and postoffice, that there are trolley lines on both streets and both are paved with brick.

We go west on Main street with trolley passing Washington park (on right) and



ROAD SKETCH SHOWING BLUE BOOK SYSTEM OF TAKING NOTES FOR WRITING MOTOR ROUTES



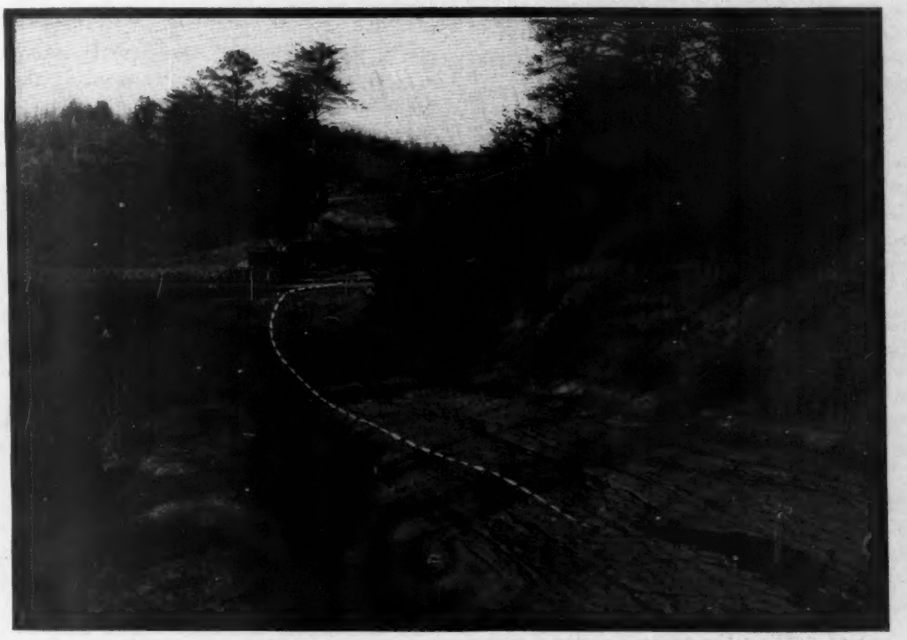
AFTER THE NOTES ARE TAKEN ROUTE CAN BE WRITTEN IN EITHER DIRECTION FROM THIS SKETCH

public library (on left—0.4 m). At 0.6 m is a five-corners, where Sixth avenue crosses Main street and Linden boulevard starts. The trolley branches, one line turning right on Sixth avenue, and we bear left with the other line into Linden boulevard on asphalt pavement. At 1.1 m trolley leaves to left and the asphalt ends, where the macadam begins. At 2.3 m we go over a railroad straight through a four-corners with a brick church on the near right, and at 3.0 m leaving macadam for dirt road. At 3.5 m we come to a right-hand branch road with frame school in fork; here we bear right with telephone poles. Caution for dangerous railroad crossing, 3.9 m. At three-corners, 4.2 m., we bear left up rough winding grade, leaving the telephone poles. Straight through diagonal cross-roads passing creamery, on right—5.1 m. At 6.1 m a diagonal cross-road with frame church on far right-hand corner and brick school on near left, railroad on right, turn left, crossing long iron bridge, 6.4 m, to end of road, 7.2 m, pine grove straight ahead, turn right, straight ahead through four-corners, 8.5 m, with brick school on near left-hand corner. Through small village of Jonesville, 9.0 m—postoffice on near right-hand corner. Caution for sharp right and left turns at S curve, 9.5 m; at fork in middle of downgrade, 9.8 m, bear left, continuing downgrade through covered wooden bridge.

Sketch of the Scheme

Here the sketch is continued with the last point repeated and the X showing where the route is continued just as though a page had been turned.

At 10.4 m bear slightly right into road from left, meeting telephone line. In the angle of this reverse fork is an iron watering trough, which, although not essential for directions going this way, would be very important as a landmark on the reverse. At 11.0 m we come to end of road at irregular four-corners where we jog right and immediately left onto macadam road following telephone poles; go under railroad, 11.6 m, to five-corners, 12.0 m, where we bear left with macadam on middle road, leaving telephone line, all other roads at this point being dirt, as shown by capital D. Pass right-hand branch road, 12.4 m, to end of road, 13.1 m. Here bear right, meeting trolley line, which follow straight ahead to end of road, 13.8 m—railroad and Porter station on left. We turn right with trolley to 14.0 m, left-hand road, where turn left, still with trolley. At 14.5 m there is a left and right jog with trolley across two railroads, and a complicated intersection of roads is shown which is almost impossible to describe in words, and again illustrates the value of the sketch. At 15.6 m into five-corners at the edge of city, where we bear left on middle street—Smith avenue, following trolley. At 15.9 m, end of Smith avenue, bear slightly right with trolley onto Main street, passing high school on right, 16.3 m, to intersection of Main street and Fifth avenue. At 16.6 m with First National Bank on far right-hand corner. Here turn two blocks to courthouse, center of Springfield, Fifth and Howard streets, 16.8 m.



OLD AND NEW ROADS NEAR CHARLOTTE, N. C., SHOWING HOW MODERN METHODS OF ENGINEERING SAVE DISTANCE

In the above we have written the route between Smithtown and Springfield, putting down in longhand all the road details, but even in this we have failed to show as much detail in writing as is possible in the sketch method which would be essential in writing the route in both directions.

Carrying this explanation a little farther, suppose we write from the same

sketch in the same direction with running directions as they would be put down in the Blue Book. Here we do not make use of all the data taken on the sketch but only that which seems necessary to clear directions, as conciseness is a large factor. This we will call style B:

0.0	0.0	SMITHTOWN, Broadway and Main Sts.—P. O. on southeast corner, Courthouse on northwest corner. Go west on Main street with trolley, passing Washington Park (on right —0.4 m.).
0.6	0.6	5-corners; bear left on middle street with one line of trolleys (Linden boulevard) keeping straight ahead where trolley leaves to the left (1.1 m.), running onto macadam and over RR. (2.3 m.); leave macadam for dirt road (3.0 m.).
3.5	2.9	Fork—frame school in angle; bear right with telephone line. CAUTION for RR. crossing (3.9 m.).
4.2	0.7	3-corners; bears left leaving telephone poles, up winding rough grade for 0.3 miles. Pass creamery (on right—5.1 m.).
6.1	1.9	Diagonal cross-road—school on left, church on far right; turn left away from RR. crossing long iron bridge (6.4 m.).
7.2	1.1	End of road; turn right going straight ahead through small town of JONESVILLE (9.0 m.). CAUTION for sharp right and left turns at "S" curve (9.5 m.).
9.8	2.6	Fork in middle of downgrade; keep left downgrade through covered wooden bridge meeting telephone line from left (10.4 m.).
11.0	1.2	Irregular 4-corners; jog right and immediately left onto macadam following poles, running under RR. (11.6 m.).
12.0	1.0	5-corners—stone school on far right; bear left on middle road following macadam past right-hand road (12.4 m.).
13.1	1.1	Bear right meeting trolley which follow straight ahead
13.8	0.7	End of road—PORTER STATION on left; turn right with trolley and take first left, still with trolley.
14.5	0.7	Curve left and right across RR. following trolley.
15.6	1.1	5-corners; bear left with trolley on middle street (Smith Ave.) following same straight ahead into Main street (15.9 m.).
16.6	1.0	FIFTH AVE.—First National Bank on far right; turn right two blocks to Courthouse, center of
16.8	0.2	SPRINGFIELD, 5th Ave. and Howard St.

The Whys and Wherefores

Now that we have gone into the details of taking road notes and putting them into text form, let us go one step farther in explaining the why and wherefore of putting the route directions down in the form shown above.

Most everyone at all familiar with route guides has seen route directions published in the form shown in style A, with no mileages brought into the margin except at the important towns, say Smithtown and Springfield, and again they may have seen it in the following form, style C:

0.0 SMITHTOWN. From Courthouse go west on Main St.
0.4 Pass library and park.
0.6 Bear left with one line of trolleys onto Linden Boul.
1.1 Trolley leaves to the left.
2.3 Go over RR.
3.0 Through 4-corners—church on right.
3.5 Fork—school in angle; bear right with telephone poles.
3.9 CAUTION for RR. crossing.
4.2 Bear left up abrupt winding grade leaving poles.
5.1 Through 4-corners passing creamery on right.
6.1 4-corners—school on left, church on far right, turn left away from RR.
6.4 Cross long iron bridge
7.2 End of road, turn right
8.5 4-corners—school on left, straight through
9.0 JONESVILLE—P. O. on right, straight through.
9.5 CAUTION for right and left turns at "S" curve
9.8 Fork middle of downgrade, keep left through covered wooden bridge
10.4 Bear slightly right meeting telephone line
11.0 Jog right and immediately left through irregular 4-corners onto macadam road.
11.6 Go under RR.
12.0 At school on right bear diagonally left with macadam.
12.4 Pass right-hand road.
13.1 Bear slightly right into road from left meeting trolley
13.8 PORTER STATION on left turn right with trolley
14.0 Turn left with trolley
14.5 Curve left and right across RR. following trolley.
15.6 Bear diagonally left with trolley on Smith Ave.
15.9 Running into Main St. follow trolley
16.3 Pass high school on right
16.6 Turn right on 5th Ave. to
16.8 SPRINGFIELD, Courthouse on left.

Styles Compared

There are other ways, but as nearly all text matter used is in one of the three forms they will serve for illustration. Looking at the style shown in A we note that the only mileage brought into the margin is for towns, and therefore it is not only necessary to read every word of the text but there is nothing distinctive to show a turn from a railroad crossing. The Blue Book long ago found this method difficult to follow if for no other reason.

Examining the style shown in C we see that all total mileages are brought into the margin, that is, whether for turns, landmarks or railroad crossings, all look the same, no distinction being made between turns and landmarks, the latter given simply to show more clearly that the tourist is on the right route.

Now refer to the style shown in B and we find not only the marginal total mileage but marginal intermediate mileage and also a few points in the text matter. It needs hardly more than a glance to show that the mileages in the margin refer every time to a turn or a town, and that all points given in the paragraph are for railroad crossing or landmark where no turn is made. With this method no mental arithmetic under trying conditions is necessary in order to determine how far it is to the next turn—it is all done for you. Even one person traveling alone can at a glance see how far ahead the next important point is and whether it is a four-corner or a fork, and the identifying landmark. Usually the person sitting next the driver follows the route data, and how easy it is with such directions to tell the driver after each turn, "Go 3.4 miles to four corners with small stone schoolhouse on farther left-hand corner, where turn left." The driver glances at his odometer, sees that it is 76.4 miles and says, "Now at 79.8 miles we should come to the four corners described," and he knows just what to do. In the meantime the person following the route data is taking a further glance at the text to see if there are any important landmarks or cautions, before coming to the next turn. Sometimes at railroad crossing 3.9 m in sketch it is necessary to observe a little care, as the railroad can not be seen in either direction until right close to tracks. In this instance it only applies when going from Smithtown to Springfield, as denoted by the arrow on the caution sign.

If upon examination nothing of importance to the route directions is given, then the book can be closed, keeping the place with a marker or the finger, and there is no reason at all why the one with the route book should not enjoy the scenery along the way as much as anyone else in the car. Quite often he enjoys it more, for usually he has some warning in the route of the kind of country which will be encountered ahead and where to look for especially attractive views.

Taft Will Talk Good Roads

President Agrees To Make Opening Address at Congress To Be Held in Richmond, Va., Next Fall—Stirring Speech on Highways Expected from Nation's Chief

WASHINGTON, D. C., Aug. 5—President Taft has consented to deliver the opening address at the good roads congress to be held in Richmond. At his request the date of the congress has been changed from October 30, 31 and November 1 to November 20-23. A delegation of officials of the American Association for Highway Improvement was received Thursday at the White House, at which time the invitation to the president to deliver the opening address was formally presented.

In greeting the delegation President Taft stated that no single movement before the country promises such big returns on the money invested as the building of good roads. The president has repeatedly made it plain that he is heartily in favor of the good roads movement that is spreading over the country and that he is willing to do all in his power to further it. He is particularly enthusiastic over the work of the American Association for Highway Improvement and has accepted a regular membership in that organization.

Present indications are the good roads congress will be the biggest affair of the kind ever held in this country. In addition to President Taft, one of the other speakers will be General T. Coleman DuPont, who is financing a $2,000,000 boulevard across the state of Delaware. Representative J. Hampton Moore, of Pennsylvania, will also speak, as well as Logan Waller Page, director of public roads, Senators Swanson and Martin, of Virginia, and several leading railroad presidents.

Missouri Picks a Route

Movement Started To Select a State Highway Meets With Much Encouragement—Arrangements Made to Dedicate New Course in September—Enthusiasm Shown in Country

KANSAS CITY, MO., Aug. 7—Missouri now has a state highway, but that highway as far as it has been decided upon reaches only part of the way across the state. The state board of agriculture voted Thursday to take the central route from St. Louis to New Florence. There is where it stopped and the highway ends until the board meets again in 2 weeks to select the remainder of the route.

The state highway as it is chosen from St. Louis to New Florence passes through St. Charles, Missouri's first capital, St. Peters, Wentzville, Foristel, Wright City, Warrenton, Jonesburg, High Hill and New Florence. It follows the Boone Lick road which the Daughters of the American Revolution have been urging.

The new state highway will be dedicated the last week of September. Of course all the route is not chosen yet, but plans already are being made for the grand opening.

Simultaneously long parades of decorated motor cars will leave Kansas City and St. Louis. They will travel over the new highway and meet at a central point for the dedicatory services. The motor clubs of these cities at the ends of the highway will be invited to take part. Each town along the successful route will send its quota of road-openers. Speech-making will follow a genuine Missouri dinner.

The members of the Missouri board of agriculture will meet in Jefferson City in 2 weeks to decide upon the remainder of the road across the state. It is believed they will pick the central route along the Santa Fe trail and Boone Lick road as the course of the highway from New Florence to Kansas City.

Only one obstacle, the Missouri river crossing at Glasgow, prevented the acceptance of the central route at once, the members believe. The inspection party last week had to go through several miles of sand road to get to the bank opposite Glasgow and then had to cross by ferry. The road was covered with straw so the approach to the river was not difficult, but straw roads won't do for the state highway. Before the central route can be accepted, the members say, they must have definite assurance of a better river crossing.

While Curtis Hill, the state highway engineer, is visiting the cities in the three routes in the next 3 weeks, investigating their promises of rock roads and ascertaining whether the roads are going to be built or not, the advocates of the central route will be attempting to smooth the river crossing at Glasgow. They already have taken up with the Chicago and Alton Railway the matter of building an apron on the big bridge there and making a crossing track as well. If the negotiations are successful the central route undoubtedly will be chosen as the first official highway of the state.

This was the sentiment of the majority of the board members before they departed for home. The central route goes from New Florence through Fulton to Columbia and then up the river over the Santa Fe trail, through Lexington to Kansas City. If the river crossing at Glasgow cannot be remedied permanently, then the northern route from New Florence to Jefferson City by way of Fulton and then up the south side through Sedalia, Holden and Warrensburg will be the most formidable competitor.

The selection of the one official cross state highway does not mean that the other roads will be neglected. When the board selects the remainder of the route in 2 weeks it also will pledge its support to the other routes as well.

The counties and road districts through which these roads pass will be asked to go ahead with the building of their rock roads and well-dragged dirt roads just the same as if they had been chosen the official state highway. As soon as the chain across the state is in good condition it, too, will be declared a state road. The north road will then be designated the North Missouri pike.

CO-OPERATIVE ROAD WORK

Louisville, Ky., Aug. 7—The central Lincoln road, which extends from Louisville to the Tennessee line, a distance of 130 miles, is being improved this week. The work is to be conducted under the auspices of the Central Lincoln Road Association, which has organized county committees in each county through which the road runs. Peter Lee Atherton, of Louisville, is president of the Central Lincoln Road Association. Through his efforts the organization has raised approximately $5,000 for the proposed improvement. Owners, dealers and clubs throughout the state are displaying much interest in the project and are working hard for the sucess of road week. Men who have not wielded a pick or shovel for years are seen hard at work this week at points all along the line of the proposed improvement. They are directed in their work by men who they themselves have selected as supervisors and who have agreed to donate their services throughout the week. By next Saturday night, if good weather prevails, the central Lincoln road will be in the best of condition and hereafter the motorist who drives his car from Louisville to Nashville will derive much enjoyment from the trip.

INDIANAPOLIS' BOULEVARD SCHEME

Indianapolis, Ind., Aug. 7—An interesting offer to form a private company to complete the boulevard scheme outlined by the board of park commissioners of this city has been made by John Ogden, an attorney.

The board has a comprehensive boulevard scheme which it has proposed to work out a unit at a time, covering a period of several years. This scheme provides for a boulevard on both banks of White river, Fall creek, Pleasant run and Pogues run their full length through the city and also for a boulevard in Twenty-fourth street and another in Thirty-eighth street from the western boundary line of the city to Fort Benjamin Harrison, about 10 miles west of the city.

A part of the comprehensive scheme already has been carried out, but it will take several millions of dollars to complete it. The board is limited in its expenditures by law to $200,000 a year, which is raised by assessments on real estate in the park districts where the improvements are made. One of the bad features of the plan has been that the board is obliged to proceed so slowly that by the time it acquires and improves a strip of ground the next succeeding strip of ground needed increases enormously in value.

Ogden proposes to organize a company known as the Indianapolis Real Estate Corporation, which will complete the boulevard system under the park board's plans, the park board to have full supervision in the letting of contracts. The city is unable to undertake all of the work immediately itself, because of the legal limit of $200,000 in district assessments annually and also by a further legal limit of issuing city bonds beyond 2 per cent of the appraised valuation of all taxables in the city. At this time the net bonding margin is small.

Ogden has the promise of eastern capitalists that they will take up to $10,000,000 worth of bonds bearing 6 per cent interest at 92½. These bonds would be issued by the private company, the completed boulevards being given as security. He proposes that the city meet the interest charges, and also the bonds when they mature in 50 years.

Ogden asks that the city allow him $100,000 for promoting and carrying out the scheme. There has been objection to the scheme because the capitalists propose to allow but 92½ for 6 per cent bonds. Ogden explains this by the fact that the money would be loaned on real estate improved in such a manner that it would have no earning capacity.

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Dirt Track Racing

AT its meeting in Detroit this week the Manufacturers' Contest Association will take up the matter of converted dirt track racing, by converted track being meant a mile or ½-mile track that has been used for horse racing being used for motor racing without any change in the surface or banking of the turns, fences, etc. The manufacturers have properly become horrified because of the many accidents that have occurred this year. Drivers have been killed at almost a majority of the track meets, in fact, they have at a majority of the big track meets. This has aroused a feeling throughout the country, that is not the best for the car interests. The motor industry cannot afford to stir up in the minds of the public any feelings of antipathy to any phase of the industry. Co-operation is needed. It is well known that almost a majority of the car makers are opposed to track events because the results do not prove anything. Cars that are anything but stock generally compete, and the advertisements that appear afterwards generally are deceptive in that they tend to convey the impression that stock machines won the events. A great many of the public know differently and the result is that public confidence is somewhat disturbed and in some cases shattered.

THE promoters may point to the crowds and talk about the interest that the meet stirs up but often the crowd is made up of a very small percentage of possible buyers. Track racing has not ranked high in the estimation of the public during the last few years; there have been too many flukes and fiascos in connection with it. Too many promoters have had their hands in the pot. There have been too many cases of tracks not oiled well enough; too many cases of poor police protection; too many cases of trophies not being awarded to the winners; too many padded entry lists; and too much individual entry hippodroming. This can all be eliminated and the public will have a higher respect for motoring. The net result to the country will be greater.

SOME of the drivers want to continue track racing, for the express purpose, as they frankly confess, to pick up some of the easy money that is offered. Many drivers are blinded by the purses offered and will race in dust, even to their own destruction. They are not sufficiently well balanced to know what is best for their own interests, to say nothing of the best interests of the industry at large. The suppression of track racing will give more attention to road reliability runs, to hill-climbs and to other forms of contests, in which the danger element does not enter and in which the cars can be satisfactorily tested.

ONE great trouble with track racing during the past has been the lack of control over the promoter. He has not lived up to his promises. His promises of safeguarding the course were not carried out. These promoters have invariably pushed the responsibility onto the referee of the meet, who arrived on the scene an hour or so in advance of the start of the program, at a time when it was too late to make any changes. These promoters are in the sport for the money and not for the industry. They take every precaution to spend the least possible amount of money and to collect the greatest amount. Such tactics never produce good results. These promoters have succeeded in many cases in undoing the good work that many of the clubs and sporting organizations have built up. Clubs spend their money and energies to promote contests that afford little remuneration. They conduct every detail of these on the highest plane and set new records for clean sport. The public is attracted by this. A few weeks or months later the money-grabbing promoter comes along, and by his numerous failures to make good destroys all the good that the club has made. The result of the promoters' graft is injury to the business.

OF late a still worse evil has exhibited itself in conjunction with track racing, namely the using of club names or other organization names in conjunction with races, when in reality promoters were receiving all the profits. This was true a few weeks ago in conjunction with a track meet on in a big western city. A prominent trade association allowed its name to be used by a promoter. The promoter used this name to get entries and draw a crowd to the meet. But when it came to dividing the profits it got a paltry $100, its own price. This is regrettable. It is deplorable that we should have some big trade organizations that are susceptible to being bought for $100 and which are willing to sell, what should be a good name and a good reputation for that price. Stop track racing and you will help to conserve the good name of motoring.

IF the makers do not do something to stop track racing the legislatures of the different states will, and when the legislatures take a hand in the matter they may go further and stop many of the other forms of contests. It is better for the motor indusry to control its own affairs than to have the different states take the matter in hand. We are suffering enough troubles now by state legislation regarding licenses, speeds, etc., and if the states get stirred up still further it will be hard to suppress them in some sections. Let the makers take the matter in hand and legislate.

Over-Rating Horsepower

MANY makers are getting pompous these days. Some of them have imagined after a good night's sleep that they are making long-stroke engines, of marvelous power. They used to make a motor 4.5 inches bore and stroke and for next year they have made it 4.5 inch bore and 4.75 inch stroke. To them this is a long-stroke motor, one of vastly increased horsepower, so greatly increased in fact that the old S. A. E. horsepower rating is no longer applicable, and they have started off to rate their motors from 15 to 35 per cent in advance of this. Some of them say their new rating is a brake test rating; some assure the dealer it is a dynamometer rating; others claim rear wheel rating; others simply call it factory rating. It makes no difference which, they are pushing the figures away up. If according to S. A. E., the rating is 28.9 horsepower, they have jumped it to 35 horsepower. These manufacturers are making an error. In the first place, they have not a long-stroke motor, they have not even a longer-stroke one. In the second place they are going to run amuck with the different state laws sooner or later. The different states are now taxing cars by horsepower. In many states they have based this horsepower tax on the S. A. E. rating, which is most favorable to the car owner. As soon as the law makers discover that the car-builder is himself rating his engine at 36 horsepower, which by S. A. E. rating only shows 28.9 horsepower he is going to change and use the rating of the maker. Then the maker will awaken, perhaps become excited and want to explain. But it will be too late and he will have to pay for his own folly. Makers should adhere to the present S. A. E. rating. It is as fair to one as to the other. It is only intended as a ready reference guide, but foreigners after having had special committees investigating the matter for several years have agreed that they cannot improve it.

France To Revive Racing Next Year

Stinging Defeats Arouse Big Makers Who for Several Years Have Held Aloof from Speed Contests on the Continent

PARIS, Aug. 1—After standing by sullenly for 3 years and refusing either to race or be interested in racing, the manufacturers of France have practically decided that there shall be a big speed contest next year. When France had been defeated 2 years in succession its national club and its big manufacturers came to the conclusion that racing was a costly and dangerous game. We had the sight of Louis Renault, who at the moment of his victories declared that racing alone could improve the breed of motor cars, vigorously denouncing all speed contests and obstinately refusing to allow any of his cars to appear in a race. Rene de Knyff, as chairman of the racing board, professed a half-hearted faith in speed contests, but as a director of the Panhard company refused to listen to any propositions for a revival of racing. The Chambre Syndicale des Constructeurs, which had practically ousted the Automobile Club of France from its premier position, and had succeeded in getting control of the salon, was equally vigorous against racing, and used its influence to such effect that it succeeded in causing the withdrawal of several firms having entered for the unofficial grand prix recently held by the Sarthe club.

France Is Aroused

Thus since 1908 races in France have been promoted by provincial clubs and sporting journals and supported by the younger and more vigorous firms refusing to be at the beck and the call of the big manufacturers. The result is that many of these small firms, active in all sporting events, and vigorous in advertising campaigns, have now become much bigger than some of the big firms at the time of their greatest glory. This rising of the new generation has caused anxiety to the self-complacent manufacturers, and while they have been openly cursing all races they have inwardly been forming a new idea of the value of speed contests. They have recently held a meeting, the official decisions of which have been kept secret, but at which it is learned on excellent authority the decision was arrived at to hold an important race next season.

Plans Being Made

It is more than probable that the organization of the event will be placed in the hands of the sporting commission of the Automobile Club of France, for although the manufacturers do not see eye to eye in all matters with the club, it has no particular quarrel with the sporting section of that body. Three places suggest themselves as the scene of the race: Dieppe, Boulogne and Le Mans. The two last named towns possess energetic clubs and have had all the experience necessary to assist in the organization of a big race; but Dieppe has the advantage of wealth, and with the help of its casino could hold out the advantage of a subsidy altogether beyond the means of the two other towns. Further, it is a fashionable seashore resort to which crowds could be attracted much more readily than to other towns, it is figured by the makers.

Coming Motor Events

*August 8-17—Reliability for trucks, Chicago Evening American.
August 10-12-13—Races on Gearhart beach, Portland Automobile Club, Portland, Ore.
August 12—Worcester hill-climb, Worcester Auto Club.
August 12—Reliability run of Quaker City Motor Club, Philadelphia.
August 17—St. Louis reliability run, Missouri Automobile Association.
*August 25-26—Elgin road races, Chicago Motor Club.
August 26-29—Reliability run from Oakland, Cal., to Lake Tahoe.
September 1—Oklahoma reliability run, Daily Oklahoman.
September 2-4—Brighton Beach races, New York.
September 2—Truck meet, Columbus, O.
September 2-12—Motor truck display, Milwaukee Industrial Exposition.
September 3-4-5—Social tour of E-M-F and Flanders owners, Indianapolis to Chicago.
September 6-9—Reliability run of Automobile Club of Buffalo.
September 7-8—Philadelphia track meet, Philadelphia Automobile Trade Association.
September 7-8-9—Track meet, Minnesota State Automobile Association, Hamline track, Minnesota.
September 7-10—Reliability run of Buffalo Automobile Club.
September 9—Hill climb at Port Jefferson, N. Y.
September 10—Liedekerke cup road race, Belgium.
September 12-13—Track meet, State Automobile Association, Grand Rapids, Mich.
September 15—Track meet, Appalachian exposition, Knoxville, Tenn.
September 16—Track meet, Automobile Club and Dealers, Syracuse, N. Y.
September 18-20—Reliability run for trucks of Chicago Motor Club, Chicago.
September 19-21-23—Reliability run, Burlington, Vt.
October 3-7—Track meet, Danbury, Conn., Agricultural Society.
October 6-13—Eight-day reliability run of Chicago Motor Club.
October 7—Fairmount Park road race, Philadelphia.
October 14—Santa Monica road races, Los Angeles, Cal.
October 15-25—Glidden tour, New York to Jacksonville.
October 16-18—Reliability run of Harrisburg Motor Club.
November 1—Track meet of Waco Automobile Club, Waco, Tex.
November 2-3-4—Reliability run of Quaker City Motor Club, Philadelphia.
November 9-11—Track meet, San Antonio Automobile Club.
November 4-6—Phoenix road race, Maricopa Automobile Club.
November 9—Track meet of Maricopa Automobile Club, Phoenix, Ariz.
November 27—Vanderbilt road race, Savannah, Ga.
November 30—Grand prix race, Savannah, Ga.
January 6-20—Madison Square Garden show, New York City, Automobile Board of Trade.
March 13-20—Show of Boston Commercial Motor Vehicle Dealers' Association, Mechanics' building, Boston.
January 1-7—Grand Central palace show of Automobile Manufacturers of America, New York City.
January 10-17—N. A. A. M. show in Grand Central Palace, New York.
January 27-February 10—N. A. A. M. show in Chicago.

*Sanction already issued

GLIDDEN TO BE TEAM MATCH

New York, Aug. 9—Chairman Butler has made the following announcement: While cash prizes will be awarded to the individual winners in the various price divisions of touring cars and runabouts, the Glidden trophy will this year be a team competition. Each team shall consist of three cars, either touring cars or runabouts or a combination of both, to be designated by the name of the city or town from which the contestants enter, and the Glidden trophy will be awarded to the team which has the fewest points penalty to its debit at the finish of the tour.

This team feature will furnish interesting competition throughout the running of the tour. If more than one team is entered from the same city or town, the first team entering shall be known as team No. 1.

An entrant has the option of electing the team on which his car shall compete except that a resident of one state cannot be included in a team from another state. In case any two teams have exactly the same number of points to their debit at the end of the tour, the cars of each team shall be examined by the technical committee as to the general condition of steering gear, brakes, running gear and front and rear axles, and penalties applied for defective condition thereof in accordance with the fixed penalty schedule.

The tour will start from New York on Saturday, October 15, and end in Jacksonville, October 25, occupying 10 running days, Saturday and Sunday being spent in Atlanta, and cover approximately 1,369 miles.

Entry blanks and rules already have been issued and may be obtained upon application to Chairman Butler.

BUFFALO BILLS A CONTEST

Buffalo, N. Y., Aug. 5—The second annual reliability tour for the Laurens Enos and other trophies, to be held under the auspices of the Automobile Club of Buffalo, will be run on September 6, 7, 8 and 9 over a course of 800 miles, thoroughly covering western New York from Lake Erie to Lake Ontario. Following the precedent of last year, each day's run of 200 miles will start and finish in Buffalo. The pathfinding work will start on August 14, and will be conducted by Dai H. Lewis, secretary of the club.

Successful Beach Meet at Galveston

Zengel in National Wins Everything in Which He Starts—Inter-State and Ford Perform Well—Fast Miles Are Made on Sand

GALVESTON, TEX., Aug. 3—The first of the 3 days' race meet on Galveston beach speedway brought out a crowd of about 20,000 spectators, and the events were carried through with satisfaction and success. The races were held under the auspices of the Galveston Automobile Club and in connection with the annual cotton carnival held here. Members of clubs from all over Texas were in attendance.

The beach was in good condition for the races, firm and smooth, with a favorably low tide after 3 o'clock in the afternoon. No accident of any nature occurred to mar the events. The course was laid out in laps of two lengths. For 10-mile races the lap was 5 miles, allowing the drivers to pass in front of the grandstand four times during the race, and for the 20 and 50-mile races the lap was 10 miles.

The fact that an end has been put to racing on circular tracks in Texas gave an added importance and interest to this meet. Motorists from all over the state came to Galveston in their cars for these races. A party comprising thirty-five cars, carrying 100 people, came from Dallas, piloted by George W. Baker, of that city, president of the Texas State Automobile Association. Two weeks before the meet President Baker made a pathfinding trip over the route, ascertaining the best course and enlisting the interest of owners along the way. From San Antonio about thirty cars came, and from other cities and towns there were enough to bring the total number of visiting cars up to 100.

Owing to a fatal accident which occurred on the beach speedway 2 days before the meet the two National cars which had been entered for the races by Captain J. W. Munn, of Galveston, were withdrawn and he did not participate in the racing. Captain Munn was trying out one of his cars on the course and had with him in his machine his adopted daughter, Dorothy Nichols Munn. The car was moving at a high speed when Miss Munn loosed her hold on the seat to prevent her hat from blowing off. Just at the moment the car passed over a slight elevation in the course. The young woman was thrown from the car and injured so that she died within a few minutes. Captain Munn was president of the Texas State Automobile Association last year, and in the races on the beach in August, 1910, he was winner in several events, driving a National 40. The withdrawal of the two National cars by Captain Munn did not keep the National cars from representation in this meet, however, for the National factory had two other cars entered, with a special driver.

The first day's events consisted of three stock car races and one non-stock, free-for-all race, as shown in the day's summaries. In the stock events the first prizes ranged from $100 to $150, and the second prizes from $25 to $50. In the 50-mile free-for-all race the prizes were $250, $75 and $25.

The feature race of the day was the 50-mile non-stock race. There were eleven starters in this, with cars from some of the best factories in the country. The race was won by Len Zengel, driving a 50 horsepower National. His time was 42:09½. This is the record for this distance on this course. Zengel's real competitors in this race were another National car, driven by Neal McHugh, and an Inter-State driven by Harry Endicott. Zengel took the lead from the start and never lost it, finishing 2 minutes and 48 seconds ahead of the other National car, and 3 minutes and 35 seconds ahead of the Inter-State. A Pope-Hartford maintained a fourth position in the race from the start to the finish, piloted by Harry Baker.

Fast Mile by Zengel

Galveston, Tex., Aug. 4—The principal feature marking the second day of the meet was the fixing of a new record on this course for the mile from a flying start. Len Zengel, driving his high powered, specially built National car No. 12, made a mile in :37⅘, or at the rate of 95.23 miles per hour. The previous record, established in 1910, was :40⅘. It was made by Zengel himself, who was then driving a Chadwick six.

The honors of the day went for the most part to Zengel and the National car he has been driving in this meet. He won both of the non-stock events, as shown in day's summaries, and he also captured first money in one of the stock races. His stock car was No. 18 and the non-stock was No. 12.

In event No. 6, a stock race between an Abbott-Detroit and a Ford, the Ford entry was protested on the grounds that the car was too light for the class. No decision was rendered, but the decision will likely be against the Ford car, it is thought by Texans.

More Honors for Zengel

Galveston, Tex., Aug. 5—The big event of the third and last day of the meet was the 150-mile race for non-stock cars. This was won by Len Zengel in his special racing National No. 12. He made the distance in 2 hours 6 minutes 6 seconds. Another National car, a stock chassis driven by W. Rader, came in for second money, finishing the 150 miles in 2 hours 10 minutes 36 seconds. An Inter-State special car, driven by Harry Endicott, was third, the time being 2 hours 44 minutes 15 seconds. A Ford car finished fourth, time 3 hours 1 minute, Albert Hoffman driver. The prizes in this race were $750, $250 and $100.

There were ten starters in this event. A Cadillac was the only one running when the race was called. It had finished 130 miles. Zengel's National made the first 50 miles in 42 minutes, the 100 miles in 83:04, 120 miles in 100 minutes and the 150 miles in 126:06. The two National cars ran the race without a stop for any purpose.

The Cadillac went the hundred miles, or

ZENGEL IN NATIONAL AND FINISHING LINE AT GALVESTON BEACH MEET

ten laps, in 140:46. The Ford went the 100 miles in 122:20. The two were the only cars that ran as much as the 100 miles, except the winners mentioned above. The Jackson and the Abbott-Detroit made nine laps, or 90 miles.

During this meet Len Zengel won every race in which he drove. He carried off about $2,000 of the prize money put up.

WISCONSIN AWARDS MADE

Milwaukee, Wis., Aug. 1—Following announcement by the Jonas Automobile Co., of Milwaukee, that it would drop its protest, the contest committee of the Wisconsin State A. A. today awarded the trophies for the second annual Wisconsin reliability tour, July 17 to 22, to the winners as shown by the official record of the technical committee.

The Milwaukee Sentinel and Milwaukee Journal trophies were accordingly awarded to No. 8 Imperial car, winner of the sweepstakes and touring car class, respectively. The Milwaukee Evening Wisconsin trophy was awarded to No. 6 Ford, winner of the roadster class, and the Emil Schandein trophy to J. D. Babcock, whose No. 103 Franklin made the best score in the private owners' division.

The Jonas company's protest that its entry, No. 1 Cadillac, should be awarded the sweepstakes and roadster class trophies on its score as shown by the first examination of its entry by the technical committee, was denied on July 29 by Judge Michael S. Sheridan, referee of the tour, on the simple ground that the protest was filed too late. The Jonas company then announced its determination to appeal the decision to the contest board. However, August A. Jonas, president of the company and driver of the car, decided later to withdraw the protest and abide by the decision of the referee.

It is admitted that much of the value of the tour—the publicity feature—has been lost by the delay in making the awards. The winners have been unable to advertise their victories, fearing to run afoul of section 75 of the A. A. A. contest rules, and consequently have lost much of the thunder that victory brings in contests of any kind. However, the newspapers have given wide publicity to the winners, making up in a measure for the advertising lost by inability to use display space.

BEACH MEET SUMMARIES

FIRST DAY

EVENT NO. 1, CLASS B, STOCK CHASSIS, DIVISION 2-B, 10 MILES

Car	Bore	Stroke	Driver	Time
Ford	3¾	4	Hoffman	11:17
Abbott-Detroit	4⅛	4¼	Roberts	11:24⅕

EVENT NO. 2, CLASS B, STOCK CHASSIS, DIVISION 4-B, 20 MILES.

National	5	5½	Zengel	16:47
Pope-Hartford	4¾	5½	Baker	19:00

EVENT NO. 3, CLASS B, STOCK CHASSIS, DIVISION 3-B, 10 MILES

Cadillac	4½	4½	De Witt	11:07½
Marion	4	4½	Geary	11:19

EVENT NO. 4, CLASS D, NON-STOCK, FREE-FOR-ALL, 50 MILES

National	5	7½	Zengel	42:09½
National	5	5½	McHugh	44:57
Inter-State	5	6	Endicott	45:46
Pope-Hartford	4¾	5½	Baker	47:40
Cadillac	4½	4½	De Witt	
Marion	4	4½	Geary	
Cutting	5	6	Swain	
Jackson	4⅞	4¾	Holmes	
Abbott-Detroit	4⅛	4¼	Roberts	
Ford	3¾	4	Hoffman	
Marmon	4½	5	Johnson	

SECOND DAY

EVENT NO. 5, CLASS B, DIVISION 5-B, STOCK CHASSIS, 20 MILES

Car	Bore	Stroke	Driver	Time
National	5	5½	Zengel	18:27½
Pope-Hartford	4¾	5½	Baker	23:45

EVENT NO. 6, CLASS B, STOCK CHASSIS, DIVISION 2-B, 20 MILES

Ford	3¾	4	Hoffman	23:22
Abbott-Detroit	4	4½	Roberts	26:07

EVENT NO. 7, CLASS E, NON-STOCK, MILE, FLYING START

National	5	7½	Zengel	:37⅘
National	5	5½	McHugh	:41
Inter-State	5	6	Endicott	:42⅖
Abbott-Detroit	4⅛	4¼	Roberts	:45
Cutting	5	6	Linxwiler	:48⅖
Pope-Hartford	4¾	5½	Baker	:52⅖
Marion	4	4½	Geary	:57½
Cadillac	4½	4½	De Witt	:58

EVENT NO. 8, CLASS G, ELECTRIC PLEASURE CARS, 5 MILES

Columbus			Collins	13:21
Babcock			Paul's	15:50
Columbus			Wallington	

EVENT NO. 10, SPECIAL EVENT FOR TEXAS STATE AUTOMOBILE ASSOCIATION TROPHY, 50 MILES, NON-STOCK

National	5	7½	Zengel	40:37⅘
Inter-State	5	6	Endicott	*
National	5	5½	McHugh	*
Cutting	5	6	Linxwiler	*
Marion	4	4½	Geary	*

*Did not finish

THIRD DAY

EVENT NO. 10, CLASS B, DIVISION 3B, STOCK CHASSIS, 10 MILES

Car	Bore	Stroke	Driver	Time
Cadillac	4½	4½	De Witt	11:09⅗
Marion	4	4½	Curtis	12:10

EVENT NO. 11, CLASS B, STOCK CHASSIS, DIVISION 4-B, 10 MILES

National	5	5½	Zengel	10:15⅘
Pope-Hartford	4¾	5½	Baker	10:16

EVENT NO. 12, CLASS D, NON-STOCK, FREE-FOR-ALL, 150 MILES

National 12	5	7½	Zengel	126:06
National 18	5	5½	Rader	130:36
Inter-State	5	6	Endicott	164:15
Ford	3¾	4	Hoffman	180:01
Cadillac	4½	4½	De Witt	
Pope-Hartford	4¾	5½	Baker	
Jackson	4⅞	4¾	Meleun	
Abbott-Detroit	4⅛	4¼	Roberts	
Marmon	4½	5	Johnson	
Rainier	5	5¼	Hall	

The little Ford No. 6, winner of the Evening Wisconsin trophy in the roadster class, carries off the honors for lowest gasoline consumption. The Ford went 23.46 miles per gallon of fuel, the basis being 985.6 miles on a total consumption of 42 gallons. The figures follow:

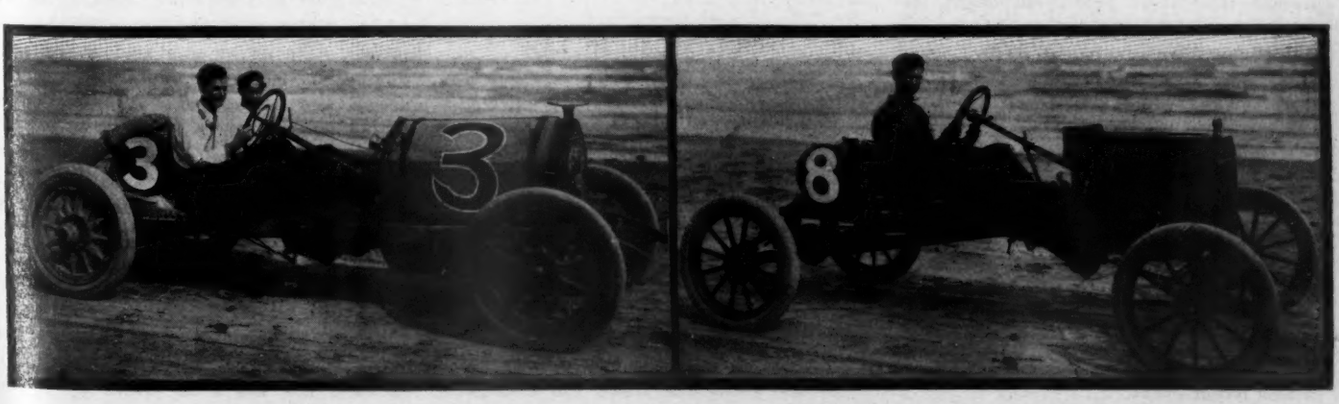
No. and car	Total consumption Gallons
6—Ford, roadster	42.0
9—Krit, roadster	56.5
15—Warren-Detroit, roadster	60.0
14—Regal, roadster	73.0
7—Imperial, roadster	75.5
1—Cadillac, roadster	82.5
12—Overland, roadster	83.0
13—Franklin, touring	85.0
2—Buick, touring	87.0
8—Imperial, touring	89.5
10—Case, touring	91.5
11—National, roadster	100.0
5—Reo, touring	100.0
4—Buick, touring	110.0
3—Buick, roadster	136.0

The poor showing of the No. 3 Buick roadster is accounted for by the fact that it broke a gasoline line on the first day out and repaired it with tape.

No accurate record could be kept of the oil consumption, as some drivers drained their oilers and crankcases at the end of their oilers and crankcases each day.

TULSA ON A BIG JOB

Tulsa, Okla., Aug. 5—As a preliminary to the building of a 12-mile macadamized motor highway from this city to the boundary line of this county on the south at a cost of $50,000, men and teams have commenced the grading. This is the initial step in the project of building hard roads through Tulsa county at a total cost of $2,000,000. The commissioners of Creek county, which lies south of this county, will build a similar hard road from Sapulpa, the county seat of Creek county, to connect with the twelve-mile road leading out of this city, connecting Tulsa and Sapulpa by a 17-mile highway of hard surface that will be the first road of such length and material in Oklahoma.



HARRY ENDICOTT, INTER-STATE, AND HOFFMAN, FORD, WHO DROVE AT GALVESTON

Give Cash for the Elgin Road Races

Rayfield, Bosch and Stromberg Offer $3350 to Aspirants for Honors in National Stock Chassis Championships—Stromberg Offers $500 for the Fastest Laps Regardless of Equipment

ELGIN, Aug. 8—An evidence of the support the motor industry is giving the American Automobile Association's national stock chassis road races at Elgin is the contribution made to the purse by several of the makers of accessories who have come forward with offers of bonuses that figure up more than the original prize-offering of the Elgin Automobile Road Race Association. In the last week offerings of $3,350 have been made to the Chicago Motor Club, so the racing men will have something well worth their while on August 25-26.

The Findeisen & Kropf Mfg. Co., of Chicago, maker of the Rayfield carbureter; the Bosch Magneto Co., of New York, maker of the Bosch magneto, and the Stromberg Motor Devices Co., of Chicago, maker of the Stromberg carbureter, are the ones to contribute so far. The Rayfield people are giving $800, the Bosch $950 and the Stromberg $1,600. The Rayfield will give $500 to the winner of the Elgin National, provided a Rayfield carbureter is used. In each of the other events the Rayfielded winner is to get $100. The magneto people are to give $100 for a first in the big race, $100 for second and $50 for third, while in each of the others it is to be $100, $50 and $50.

The Stromberg offer is unique in that $500 of the $1,600 is given outright to encourage speed in all of the events by offering a fat prize for the fastest lap in each event, regardless of equipment. In the Elgin National the fastest lap means $200 to the one who makes it, while in each of the others it is to be $100. Besides that the Stromberg company offers $500 for a Stromberg victory in the Elgin National, and $200 in each of the other three races.

Entries to the races close a week from next Sunday night and the indications point to there being about thirty-five nominations in the four races. At the present time there are twenty-eight, divided, nine in the Elgin National, four in the Illinois, fourteen in the Kane County and one in the Aurora. The latest to come in is the Cino, which has entered two.

Out at Elgin the local association is rapidly completing its work. Arrangements have been made for the militia and on the first day the course will be guarded by the citizen-soldiery from Elgin, Aurora and DeKalb, while the second day the First Illinois Cavalry will be on duty. Governor Deneen has promised to be present at the first day's racing, which will be the first time he ever has been to an Illinois motor event.

The course itself is practically completed and the racing men are beginning to arrive. Grant, Lee and Hartman, of the Alco team, moved into their camp today and until the training week starts will content themselves driving around in touring cars. Maisonville, of the Corbin, also moved to Elgin today and with the Alco men will devote his attention for the next week to studying the course. Grant is delighted with the circuit and endorses the opinion expressed by Ralph de Palma that the winner of the Elgin National ought to average close to 68 miles an hour.

Another sign of the progressiveness of the promoters is the oiling of the road between Chicago and Elgin, a stretch of 21 miles, which is being made dustless in order that the race-goers may have a fine road over which to travel going to the big meet.

CHICAGO RUN 8-DAY AFFAIR

Chicago, Aug. 7—The announcement of the American Automobile Association that the Glidden is to be a good roads tour into the south has caused the Chicago Motor Club to change its plans regarding its annual reliability contest. Originally it was set for a 4-day test and the dates were to be October 9-13. Now the club fancies the trade will demand a test that will take the place of the Glidden so the tour has been extended to 8 days and will last from October 6 to 13 inclusive and the route to be followed will be 1,426 miles in length, running through five states. The night controls selected are Indianapolis, French Lick, Louisville, Cincinnati, Columbus, Detroit, Grand Rapids and Chicago.

The pathfinder is to be a Halladay furnished by Charles M. Hayes, who pays the club $250 for the privilege of blazing the route. The car goes out August 25 and accompanying it will be John P. Dods, of the Official Automobile Blue Book, who will write the route matter.

UPHOLDS CALLAN LAW

New York, Aug. 7—Magistrate Murphy, sitting in the Yorkville court, decided last week that the Callan law, passed recently, applies to New York city, and that cars may be driven through the streets "at any rate under 30 miles an hour, unless surrounding conditions make it reckless driving." He also decided that that law has superseded the city ordinance, which fixes speed in the city at 8 miles an hour, and stated that that ordinance is null and void.

Bicycle Policeman Howe had arraigned John Martin, whom he accused of driving his car at 27 miles an hour on Fifth avenue in the early morning.

"Under the Callan law," said the magistrate, "a motorist may run his machine at a rate under 30 miles an hour unless surrounding conditions make it reckless driving. But as little as 8 miles an hour may be reckless under some conditions."

Howe protested, and the magistrate said the city ordinance has been superseded by the Callan law.

SAURER FINISHES TRIP

New York, Aug. 5—The ocean-to-ocean trip of the 5-ton Saurer truck ended in New York the afternoon of August 2. The load carried by the Pioneer Freighter consisted of camp equipment and timbers for shoring up bridges and making mud holes passable. The car also carried a powerful winch, operated by the regular motor, with which it hauled itself out of some of the bad spots. The chassis structure came through unharmed except for the breaking of two leaves in a spring when the car struck an unseen road obstacle in the dark. The truck came into New York with the original set of tires throughout—Goodrich wireless motor truck tires, those on the rear wheels being dual. There was no tendency of the soft rubber portion of the tire to loosen and break away, nor was there any shredding or grinding, though many miles of the route were over dry and boulder-covered creek bottoms, while in many places the Saurer was run for a mile or more on the sleepers of steam railways in lieu of a better road.

BURMAN DEFEATS KNIPPER

Scranton, Pa., Aug. 7—The Remy grand prize changed hands again at the race meeting held here today on the ½ mile track of the Minooka Driving Club. The Blitzen Benz driven by Burman defeated the Mercedes, Knipper up, in straight heats, both cars and drivers being controlled by the same interests. A program of non-stock events was run off in connection with the big race. The winners turned up in a Buick, Hotchkiss, Ohio and Buick.

TEXAS ASSOCIATION MEETS

Galveston, Tex., Aug. 7—During the beach meet held here last week a meeting of the directors of the Texas State Automobile Association was held at which a number of matters of interest were discussed and acted upon. A discussion of motor legislation was had, and it was announced that an effort is to be made to have Governor Colquitt submit to the special session of the legislature now being held the matter of a law for uniform registration of cars throughout the state, and to proceed along the line being mapped out by the A. A. A. for reciprocal registration, so that cars may visit between states upon home state registration. A skeleton law has been drawn up on the subject.

On motion of Mr. McKie, $100, or so much thereof as may be necessary, was appropriated to assist in defraying the expenses of the recent tour of the Red river-to-the-gulf highway pathfinder, the tour being promoted in part by President Baker of the Texas association.

A resolution was adopted having for its purpose the stimulation of organization among the owners of motor cars, to encourage the formation of local clubs in the various towns, and to have those clubs affiliate with the Texas Automobile Association. The aim of this movement is to bring all owners of cars together in order that trans-state tours may be arranged, tours between towns may be mapped out, parades may be conducted on special occasions, and motoring functions may become more numerous. The next meeting of the directors will be held in Waco, next April.

ELECTRIC PLANT AT JACKSON

Jackson, Mich., Aug. 8—The Standard Electric Co., with its plants at Jackson, has been organized for the production of popular-priced electric vehicles. It will occupy its new plants about September 1. All plans have been formulated and the production is already actively on the move. C. F. Krueger, for several years with Studebaker, takes over the active management of the concern and also becomes its vice-president. The company also retains the exclusive services of J. D. Forrer, one of the chief engineers of the motor department of the Westinghouse Electric and Mfg. Co. The design of the car is of the four-passenger coupe type, and while there are several distinctive features, it involves no radical departure in design, but is built according to the best accepted standard and practice. The car is shaft-drive instead of a chain.

Power Wagons Making Long Journey

Twenty-Six Cars Start In American's Run From Chicago to Detroit and Return—Eighteen Survive First Day's Run to South Bend With Perfect Scores—No Serious Trouble Had

SOUTH BEND, Ind., Aug. 8.—Of the forty-two cars entered in the Chicago Evening American commercial vehicle reliability run from Chicago to Detroit and return, twenty-six cars started from the Windy City between 6 and 6:30 o'clock this morning. Of these eighteen arrived in South Bend, the first night control, with perfect scores. The perfect score cars comprised three Gramms, two Buicks and one each of the following: Modern, Hewitt, Mais, Kelly, Lauth-Juergens, Le Moon, Lincoln, Owosso, Chicago Pneumatic Tool, Federal, Chase, Stephenson and Clark.

As for the others, the No. 4 Gramm suffered 8 points penalty for adjusting the points of a spark plug. The Poss was penalized 52 points for repairing a water-jacket with cement, which was cracked by pouring cold water in the radiator; 40 points were added to this for work done on a defective shifter fork which operated the friction disk; and 100 points for being late brought the total to 192. No. 14 Dayton took 1 point for stalling the motor and failing to get it started again within a minute; No. 16 Kelly was taxed 8 points for cleaning spark plugs; No. 27 Richmond received a penalty of 20 points for work done on magneto and plugs; and No. 34 Chase suffered 4 points penalty when pistons seized, as a result on the part of the driver to add the necessary amount of oil to the lubricant. Overheating and lateness cost the Van Dyke No. 37 a penalty of 39 points; and 10 points were imposed upon the No. 39 Ideal for having the spark plugs cleaned.

An error in the route matter, which caused even the pilot car to go wrong at a turn 5 miles before reaching Michigan City and distribute confetti in both directions, caused considerable trouble. The day's results were as follows:

No.	Car	Penalties
1	Gramm	0
2	Gramm	0
3	Gramm	0
4	Gramm	8
5	Modern	0
6	Hewitt	0
9	Poss	192
10	Buick	0
13	Mais	0
14	Dayton	1
16	Kelly	8
17	Kelly	0
20	Lauth-Juergens	0
23	Le Moon	0
24	Lincoln	0
27	Krickworth	20
30	Owosso	0
31	Chicago Pneumatic Tool	0
32	Federal	0
33	Chase	0
34	Chase	4
36	Stephenson	0
37	Van Dyke	39
38	Clark	0
39	Ideal	10
11	Buick	0

STARS FOR DEAD HORSE CLIMB

Worcester, Mass., Aug. 7—Bruce-Brown, driving the 200-horsepower Fiat, and Ralph de Palma, at the wheel of the 90-horsepower Simplex, are expected to be the leading drivers at the Dead Horse hill-climb which will be held on Saturday. In the free-for-all event against time the National, Simplex, Fiat and Knox have so far entered.

SPECIFICATIONS OF CARS TAKING PART IN CHICAGO-DETROIT TRUCK RUN

No.	Car	Driver	Load Car'ied	Wheel Base	TIRES		Drive	MOTOR						Carbureter	Clutch	Gearset	Control
					Ft. Whs.	R. Whs.		Cycle	No. Cyls.	Bore	Stroke	Ignition	Cooling				
9	Poss	W. F. Trudeau	1,010	95	*34x5	34x5	Shaft	4 C	4 Black	3	4	Mag. Single	Water Therm	Stromberg	Friction	Friction	R. H.
24	Lincoln	Chas. Woodrich	818	84	*34x3½	34x3½	Chain	4 C	2 opp.os	4	4½	Battery	Air	Schebler	Friction	Friction	L. H.
37	Van Dyke	F. J. Moresette	1,030	106	*32x4	32x4	Shaft	4	2 opp.	4	6	S. Mag. & Dry	Water	Holley	Friction	Friction	R. H.
5	Modern	Carl J. Biglow	1,520	102	36x3	36x3	Chain	4	4 Block	4 1/16	5	Remy Dual	Water	Schebler	Cone	Sel. Sliding	L. H.
10	Buick	F. Kunze	1,585	92	*34x4½	34x4½	Chain	4	2 opp.	4½	5	Remy Dual	Water	Schebler	Cone	Planetary	R. H.
11	Buick	A. Eaesterdey	1 597	92	*34x4½	34x4½	Chain	4	2 opp.	4½	5	Remy Dual	Water	Schebler	Cone	Plan	R. H.
31	Chi Pneu	E. H. Aplir	1,562	86	36x2	36x2	Chain	4	2 opp.	4	5	Battery	Water	Schebler	Multi Disk	Plan	R. H.
33	Chase	H. L. Ferris	1,514	100	38x2	36x2	Chain	2	3	3¾	4	Bosch Mag.	Air	Holley	.....	Plan	R. H.
27	Krickworth	J. M. Moth	1,612	90	34x2½	36x2½	Chain	4	2 opp.	5	5	Simms Dual	Air	Kingston	Friction	Friction	R. H.
1	Gramm	A. L. Hobbs	2,163	110	34x3½	34x3½	Chain	4	4 C	4	5	Bosch Dual	Water	Schebler	Multi Disk	Sel. Sliding	R. H.
6	Hewit	J. W. Gardham	2,085	104	36x3	36x4	Chain	4	4	3½	4¾	Bosch	Water	Hewitt	Cone	Sel. Sliding	R. H.
23	Nelson Le Moon	A. R. Le Moon	2,020	132	35x3	36x3½	Chain	4	4	4	4	Bosch	Water	Rayfield	Multi Disk	Sel. Sliding	R. H.
20	Lauth-Juergen	F. M. Herrick	2,040	108	32x3	32x3½	Chain	4	4	4	4	Bosch	Water	Rayfield	Disk	Sel. Sliding	R. H.
30	Owosso	Wm. Rust	2,040	126	34x3½	34x3½	Chain	4	4	4½	5	Bosch	Water	Schebler	Disk	Sel. Sliding	R. H.
32	Federal	R. Mood	2,235	110	36x3½	36x4	Chain	4	4	4½	4½	Bosch Dual	Water	Stromberg	Cone	Sel. Sliding	L. H.
34	Chase	J. O'Brien	2,033	106	36x2	39x2½	Chain	2	3	4½	4	Bosch	Air	Holley	Cone	Sel. Sliding	R. H.
36	Stephenson	E. Zimmer	2,250	110	40x3½	40x3½	Chain	4	4	4½	5	Splitdorf Dual	Water	Stromberg	Friction	Double Fric.	R. H.
38	Clark	McCue	2,050	100	36x3	36x3½	Shaft	4	4	3¾	5	Phansteihl Dual	Water	Schebler	Multi Disk	Sel. Sliding	R. H.
39	Ideal	W. C. Miles	2,010	100	36x2½	36x3	Chain	4	2 opp.	5½	4½	Bosch	Water	Stromberg	.....	Plan	R. H.
2	Gramm	Adam Withrow	4,183	116	36x4	36x3	Chain	4	4	4½	4½	Simms Double	Water	Schebler	Multi Disk	Sel. Sliding	R. H.
16	Kelly	A. E. Rayner	5,152	136	36x4	38x5	Chain	4	4	4¾	5½	Eiseman Dual	Air	Breeze	Cone	Sel. Sliding	R. H.
29	Mais	I. J. McCloskey	5,145	128	*36x4	36x3½	In. Gr.	4	4	4	5½	Eiseman	Water	Rayfield	Exp. Shoe	Sel. Sliding	L. H.
3	Gramm	Chick. Haims	6,232	124	*36x5	36x4	Chain	1	4	5	5	Simms Double	Water	Schebler	Multi Disk	Sel. Sliding	R. H.
14	Dayton	A. H. Bennett.	6,127	146	†36x5	36x4	Chain	4	4	4½	5	Bosch Double	Water	Stromberg	Multi Disk	Sel. Sliding	L. H
17	Kelly	C. R. Wichgott	7,145	136	†36x5	38x4	Chain	4	4	4½	5½	Eiseman Dual	Air	Breeze	Cone	Sel. Sliding	R. H.
4	Gramm	E. Walden	10.235	130	†36x5	40x5	Chain	4	4	5	5	Simms Doub	Water	Schebler	Multi Disk	Sel. Sliding	R. H.

In. Gr—Internal gear * Pneumatic †. Dual

Planning Big Outputs for Next Season

Studebaker and United Motors Announce What They Intend Doing for 1912—Latter Declares Its Allied Companies Will Manufacture 30,000 Cars—Hupp Denies Rumored Resignation

DETROIT, MICH., Aug. 7—Immensely increased 1912 production by the Studebaker Corporation and the United States Motor Co.—two of the most powerful manufacturing combinations of the industry—were announced here during the past few days.

The Studebaker company, in its 1912 announcement, states that it plans to build at the E-M-F factories in Detroit a total of 50,000 cars—20,000 of the E-M-F 30 type and 30,000 of the Flanders 20. This is, of course, in addition to the Flanders electrics which are being put out at the Pontiac plant of the Flanders Mfg. Co. but which will, it is believed, be marketed to a great extent through the same dealers.

This firm makes a strong point regarding a lack of important change in any of its models. The 1912 E-M-F 30 will have a lengthened wheelbase—112 inches—and will be put out only in fore-door style, aside from the coupe. Further improvement in finish and the addition of minor details constitute the only other innovations. The three-speed Flanders 20 is now coming through the factory at a rate of 100 a day and the firm hopes to double this speed with the completion of additional factory space, now under construction. The company's announcement states that its advertising campaign has been purposely held back for a month, on account of the complaint of its dealers, whom the factory has been unable to supply enough cars to fill the demand.

United States Motors Meeting

The United States Motors' announcement was of an informal character and came to light as part of the proceedings at the annual meeting of the central district branch managers of the company, who gathered in Detroit at the call of District Manager Alex. I. McLeod.

Addresses were delivered at various times by Benjamin Briscoe, president of the company, and Horace de Lisser, vice-president, as well as by Alfred Reeves, Fred Dayton, D. C. Fenner, J. J. Aldrich, C. M. Rodgers and T. L. Marshall, all officers of the various divisions of the company.

The production announcement was made by President Briscoe himself. He promised the branch managers an output of 30,000 motor cars and trucks for the coming season, adding that this figure for the Maxwell, Brush, Columbia, Stoddard-Dayton and Alden Sampson plants had been determined on as the result of long and systematic correspondence with the firm's dealers, who, by estimating the sales for their respective territories, indicated plainly their belief that 30,000 cars would be required to supply the demand.

"Our engineers and designers," said Mr. Briscoe, "have been wise enough to build all kinds of motor cars that our dealers ask for. The men who sell are the ones who know what the public wants, and it is our desire to be guided by their ideas on types, as well as their ideas of demand."

In attendance at the convention were the following managers of the respective branches: R. K. Davis, Detroit; M. D. McNab, Chicago; E. E. McClure and C. F. Tyler, Cleveland; F. P. Corbett, Columbus; J. W. Hayden, Indianapolis; W. H. McIntyre, Toledo; J. A. Newby, Newcastle; L. G. Murray, South Bend.

Hupp Denies Resignation Rumors

A rumor which has gained some credence in Detroit has caused much annoyance at the offices of the Hupp Motor Car Co. This was to the effect that President R. C. Hupp was soon to sever his relations with the company, to organize a new firm which would manufacture a competing car.

This rumor was flatly denied both at the Hupp Motor Car Co. and later by Mr. Hupp himself. Mr. Hupp believes that the report is probably due to the fact that for some time he has been devoting a large share of his energies to the Hupp Corporation—an entirely separate organization from that of the Hupp Motor Car Co., though including a large number of its directors.

"I am interested as much as ever, both financially and in spirit, with the success of the Hupp Motor Car Co.," said Mr. Hupp. "But I regard its affairs as now on a basis which requires very little attention from me. It is an assured success. So is the Hupp Corporation, but it is as yet in a formative stage and I can do more good there, I believe. Please deny for me that I am considering any withdrawal from the motor car company, much less the organization of a competing concern."

The city continues a notable rendezvous for dealers who visit their respective factories, examine the 1912 product and place their orders. An indication of the trend of the times is the fact that, while in years past the dealer came as if asking a favor and usually received treatment accordingly, he is now welcomed cordially and entertained often by an officer of the company whose especial duty it is to make things pleasant. This official is attached to the sales department and is called at some factories the head of the courtesy department. He always has at his command a fleet of cars and, in the E-M-F, Packard and several other factories has a garage and staff which do nothing but follow out his orders.

The Cadillac plant has resumed production, after a lapse in activity during which inventory was taken and material installed for the run of 1912. Testers with the new cars already are seen on the streets. No official announcement has been made of the company's plans for next season, but it is known that the General Motors directors have admitted a regret that production at this plant was held to the comparatively low figure set at the start of the season.

OUTING FOR BUFFALO DEALERS

Buffalo, N. Y., Aug. 8—The eighth annual Glidden tour and reliability contest of the Buffalo Automobile Trade Association was held around Grand Island last Friday. The entrants checked in on the single-cylinder water trucks, the Clarence J. Fix and the J. Striker, at the foot of Amherst street at 9 o'clock in the morning. It surely was a good time for the motor car men, although it was not much of a race. The requirements of the contest were met by all who entered; namely, to go once around the island without hitting anything, and so as there was no prize award nobody felt that he was slighted. The contest was under the direction of President John J. Gibson, who rode as pacemaker. The other officers were: Vice-president George Ostendorf, starter; Treasurer Ralph Brown, checker-in; Secretary Arthur W. Meyer, checker-out; observers, Charles F. Three, J. A. Gruner and E. E. Denniston. A delegation from the Syracuse Automobile Dealers' Association also took part in the tour.

INDIANA MAKERS ORGANIZE

Newcastle, Ind., Aug. 7—Some 200 motor car people and newspaper men, most of whom participated in the recent Indiana four-states tour, were the guests yesterday of the people of Newcastle at a grove near the city. The occasion was a picnic arranged by Frank E. Smith, was was general chairman of the tour and who is identified with the Newcastle plant of the Maxwell-Briscoe Motor Co.

The visitors began arriving in the city early in the morning. At 11 a. m., headed by the band composed of employes of the Maxwell plant, the visiting machines left the public square for the picnic grounds, 4 miles away. There were machines from almost every part of Indiana, and the occasion was one of the most auspicious Henry county ever has seen.

It is unlikely that the dinner that was served ever will be forgotten. About 250 pounds of dressed chickens, several bushels of roasting ears and enormous quantities of food stuffs contributed to make the event a success.

In the speechmaking following the dinner, Charles A. Bookwalter, former mayor of Indianapolis, and a stockholder in the

Mais Motor Truck Co., of that city, proposed that an association of manufacturers of motor cars in Indiana be formed. The suggestion was accepted instantly and the Indiana Automobile Manufacturers' Association was formed with a large charter membership.

Frank E. Smith was elected president without opposition and amid great applause. Other officers elected were: First vice-president, Will H. Brown, Mais Motor Truck Co., Indianapolis; second vice-president, V. F. Whitesides, Whitesides Commercial Car Co., Franklin; third vice-president, George M. Dickson, National Motor Vehicle Co., Indianapolis; fourth vice-president, Howard C. Marmon, Nordyke & Marmon Co., Indianapolis; fifth vice-president, George A. Weidley, Premier Motor Mfg. Co., Indianapolis; secretary, P. P. Willis, Mais Motor Truck Co., Indianapolis, and treasurer, Fred N. Coates, Lexington Motor Car Co., Connersville. Mr. Willis and Mr. Coates were secretary and treasurer respectively of the four states tour. Within the next few days President Smith will appoint a committee to draft a constitution and by-laws. He will then appoint the various committees that will be provided in the by-laws.

Charles S. Hernley was toastmaster at the dinner and Mayor George H. Barnard, of Newcastle, made the address of welcome.

MILLIONTH PATENT A MOTOR IDEA

Washington, D. C., Aug. 5—It has remained for the inventor of a motor car tire to secure the millionth patent issued by the United States patent office. The patent was announced today and is for a punctureproof tire for motor cars, depending upon rubber springs for its resiliency, and is the invention of E. H. Holton, of Akron, O. So much interest has been displayed by the public in the completion of the number 1,000,000 that Commissioner of Patents Moore consented to announce the patent on August 5, although the regular day would have been August 8. In announcing the millionth patent, Commissioner Moore informed the Motor Age correspondent no application had been selected to receive this number. He said the application came up in the regular order of business, was numbered and carried through the regular channels, and was signed without ceremony. Numerous requests were received from various inventors for this distinction, but all were denied.

TRYING OUT ADAMS TRUCK

Findlay, O., Aug. 7—On an endurance run from Findlay to Chicago a 30-horsepower Adams truck left this city this morning, carrying a load of 2,300 pounds. The run will be made from Findlay to the garage of the Chicago agency of the Adams Brothers Co., for the purpose of giving the product of the Findlay factory a thorough test. The car left this city at 4 o'clock this morning and was scheduled to reach Chicago Wednesday night. The distance to be covered by the car will be in the neighborhood of 250 miles. The truck is built for carrying a load of 1 ton.

English Puts Small Car to Rough Test

Deasy of 15.9 Horsepower Required To Cover 15,000 Miles on Brooklands Track—It Averages 288.6 Miles Per Day and Does Almost 24 Miles to the Gallon in Fuel Consumption

LONDON, July 29—The exact condition of the small car after traveling 15,000 miles is well shown in the official report which covers a run of 15,000 miles by a 15.9 horsepower Deasy car on Brooklands track the past summer. The car was put through a test of approximately 288.6 miles per day, the object of the run being to discover the reliability of a car at average speeds. In the test the car consumed 648.5 gallons of gasoline, being an average of 23.143 miles per gallon, which is a consumption figure of 31.881 ton-miles per gallon. In this test 12.6 gallons of lubricating oil were used in the motor, the consumption 1184.49 miles per gallon. These figures are very favorable, as the weight was 2,753 pounds and the average load weight 332 pounds. The motor is a four-cylinder type 3.14-inch bore and 5.1 stroke. In addition to the oil used in the motor, 5.5 pints were put in the live rear axle and 7.25 ounces in the clutch. No oil was put in the gearbox after the test started. The water consumed during the trial was 7 gallons 6.5 pints.

The total amount of work done on the car during the trial, excluding lubrication, was 57 minutes 6 seconds. This work included a radiator copper water connection leaking, oil filter cleaned, cleaning spark plugs, adjusting foot brakes, adjusting hand brake, tightening bolts holding oil tank to frame, examining spark gap of magneto and also make-and-break points of magneto.

At the end of the run the car was given a thorough examination, being completely dismantled. In this examination the following points were made: Ball bearings near front wheel somewhat worn; lower end bearings in the connecting rods very slightly worn; valve tappets slightly worn on the heads; change-speed gear lever loose on its shaft; front bearing of main shaft of gearbox slightly worn and loose in housing; both bearings on countershaft of gearbox loose in their housing; exhaust valve pitted, good working faces; two valve springs broken; the halves of the ball socket rear end of coupling rod in the steering connections were loose in the tube; the front wheel steering pivot bushes were slightly worn; ball bearings in the back universal joint were destroyed and there was consequently much looseness; oil was leaking where the axle housing joints with the differential owing to some of the bolts connecting these being loose; and the special oil tank was loose. The official report also goes into details mentioning how the other parts of the car were found in good condition. This is a very favorable report on the car of modern power which was forced to run almost 300 miles a day for this distance.

INDIANAPOLIS REJECTS BIDS

Indianapolis, Ind., Aug. 7—All bids for supplying motor fire apparatus for the Indianapolis fire department have been rejected by the board of public safety and new bids will be received and opened August 16. Former bids were rejected in order to give several companies more time to prepare proposals. Each bidder must submit photographs, blue prints and specifications. The apparatus to be purchased includes combination hose and pump apparatus, carrying 1,000 feet of hose and capable of pumping 600 gallons of water a minute; squad wagons, to carry eight men, 250 feet of ¾-inch chemical hose and a 35-gallon chemical tank; combination hose and chemical wagon, to carry eight men; ladder truck, to carry 130 feet of ladders and eight men.

NEW PITTSBURG CONCERN

Pittsburg, Pa., Aug. 8—The Senator Motor Car Co., capital $200,000, has completed its organization as follows: President, C. E. Vance, of the Consolidated Mfg. Co. and the Anchor Packing Co., of Philadelphia; treasurer, P. T. Coburn, formerly advertising manager of the Westinghouse Electric and Mfg. Co., of Pittsburg; secretary and manager, A. F. Schmidt, of the Penn Motor Car Co., of Pittsburg. The directors are John F. Edmunds, of the Anchor Packing Co., of Philadelphia; Dr. E. R. Walters, head of the department of health of Pittsburg, and G. C. Campbell, of Pittsburg. All of these men are prominent in the business world in Pittsburg.

The company has established offices in the Jenkins Arcade building on Liberty avenue. It is going to locate on Pennsylvania avenue, North Side, and is fitting up two buildings, 80 by 400 and 300 by 400, for its use. It will manufacture four distinct types of cars: a two-seated roadster of 40 horsepower; a light-delivery truck of 35 horsepower capacity; a heavy delivery truck, capacity 3 to 5 tons and of 60 horsepower; a four-seated touring car. The company expects to have its plant in operation about October 1, 1911, and will employ at least 100 men at the start.

Ocean-to-Ocean Tourists Reach San Francisco In Transcontinental Run

SAN FRANCISCO, CAL., Aug. 4—Motoring across the American continent from the Atlantic to the Pacific coast is easy. That fact is proven by the appearance of the Premier ocean-to-ocean caravan of ten touring cars in addition to the pilot and the prairie schooner camp car, which left Atlantic City June 26. The arrival here literally marked the completion of the ocean-to-ocean run, although the schedule will not be completed until Los Angeles is reached.

The twelve cars in the ocean-to-ocean caravan do not have the appearance of having crossed the continent. The tourists spent several hours at San Jose putting their cars in good condition for a grand entry into Frisco and the result was that they had the appearance of having been on a trip of a few hours instead of weeks. For 5 days local motorists and officials will entertain the easterners and celebrate the success of the first transcontinental tour by pleasure drivers at the wheels of their own cars. In the party are forty-odd people, including eight women and three children who are boy scouts. The owners of the cars are at the wheels and among them are men prominent in New York and Philadelphia.

Little Trouble on Trip

When the Premier tourists left Denver, July 18, two-thirds of the 4,500-mile journey had been completed and the mechanical difficulties consisted of a broken rear spring and a broken front spring. On that day the entire caravan was caught on Medicine Bow range by a cloudburst which made the roads impassable. The eight women slept in a barn while the men made the best of conditions in their army tents outside. The following day Wyoming was entered, Laramie being the noon control. A municipal trout dinner was the feature there. Rawlins, Wyo., was the night control, the tourists finishing 157 miles through the heart of the Rockies with a parade through the principal streets.

The next night found them at Rock Springs, Wyo., after passing the continental divide at noon at an elevation of nearly 8,000 feet. The cars at that excessive height showed no lack of power, indicating there is no altitude for motor cars. The party then was on the Pacific slope, with every member in perfect health and enthusiastic over the future and what had gone before. Not a minute of monotony had been reported. The run from Rawlins to Rock Springs was over 150 miles of the worst roads of the tour. The tourists predicted that it will be a boulevard within a year.

Good Time at Salt Lake

Salt Lake City was the next control, the ocean-to-ocean tourists being escorted by the mayor and his official family, who traveled over into Wyoming 100 miles to meet them. The day's run was 147 miles through the Rocky mountains. Between Rock Springs and Salt Lake the speedometers on all the Premiers passed the 3,000-mile mark. Not a car had been lost and the only mechanical difficulty consisted of two broken springs. The party had been on the road 20 days, taking time out for receptions and stopovers along the route, and the average mileage was over 150 miles a day. Five mountain ranges had been crossed, including two great divides, 8,000 feet at Tie Siding, Wyo., and 7,500 feet at the continental divide. The plains of the central west and the bad lands of Wyoming and southern Colorado were behind, together with seven of America's greatest rivers.

For two days the ocean-to-ocean tourists were feted by the people of Salt Lake City. The church of the Mormons arranged for special recitals on their great organ and otherwise entertained. The Commercial Club gave a big banquet in honor of the guests, Governor Spry being of the party. Three days were spent in Salt Lake City and Ogden was reached Wednesday, July 26, when the festivities of Salt Lake City were repeated. The following day the most difficult portion of the tour was started. Six hundred miles of desert sand lay before the motorists, but they were without fear.

Montello, Nev., was the night control, but the road conditions were such that they were unable to make it and camp was made at Lucin, Utah, the women again sleeping in a barn and the men in their cars. The day's run was 147 miles over the worst roads of the tour up to that time. Nevada was entered the following day, leaving only one more state to cross. Elko was reached Friday night. The next morning the journey was renewed on a new route. They left the old route along the Southern Pacific railroad tracks and made a southern detour by the way of Eureka, Austin and Sallon to Reno, where they again took up the running beside the railroad. By making this detour they avoided much of the bad sands of Nevada.

From Reno to San Francisco, a run of 2 days, the roads were fairly good, as they are used daily by motorists. Altogether the roads of Nevada, Utah, Wyoming and Colorado were not nearly as bad as the motorists were led to expect and it would not be surprising if several of them do not return to their Philadelphia and New York homes in the same manner, instead of shipping their cars back, as originally planned. At every control between Salt Lake and Reno the tourists have camped out in their army tents, while that was also the program between Omaha and Denver.

WORK FOR RULES COMMITTEE

Detroit, Mich., Aug. 7—Of more than ordinary importance will be the meeting of the general rules committee of the Manufacturers' Contest Association, which will convene in this city next Friday, when contest regulations for the season of 1912 will be considered. Not only will the rules committee be at the meeting but in addition invitations have been sent to members of the contest board of the A. A. A., the board of review, the chairman of the technical committee, the advisory committee and other interested parties.

Listed for discussion are racing and contest problems galore, the most important of which are dirt track racing and the stock-car proposition. The M. C. A. evidently belives it will be impossible to legislate the circular mile track out of existence but is willing to hear the pros and cons of it. Probably what will be done will be to hold on to control of this branch of the sport through the A. A. A. but to insist that the tracks be made safe—properly surfaced, and with a con-

crete retaining wall or guard rail at hub height and spectators' boundary fences placed at a point not less than 50 feet from the inner and outer track edges.

Members of the Manufacturers' Contest Association have been asked to answer a series of questions regarding their views on stock-car competition in order that the rules committee may act intelligently in the matter. The first query is as to whether or not stock-car events are desirable in their present numbers. It is asked if it will be agreeable to entirely eliminate the weight limit and it even is suggested that this mooted question might be settled by having the A. A. A. technical committee take a chassis from stock, strip it to a racing condition and thus obtain the true weight.

There seems to be a possibility that the rules committee will get around the proposition by limiting the strictly stock-car events to four or five big contests annually, including road, speedway and hill-climbing events, placing these under the most rigid technical supervision as to the bona fide nature of the stock chassis. Makers are asked if they would like to have the term "stock car" eliminated altogether from competitive events.

It is realized that the rigid enforcement of the stock-car rule imposes a financial burden upon the American Automobile Association, and the M. C. A. is considering the advisability of making a formal request to the National Association of Automobile Manufacturers or one of the other trade organizations for such financial support as may be necessary to insure the proper administration of the contest rules which the M. C. A. has recommended.

"In this connection it might be well to note that in limiting the number of annual stock-car events and by eliminating the tremendous detail which has been forced upon the contest board through our establishment of the stock-car registration scheme, that the board would be saved a heavy expense in clerical and technical work and would be given an opportunity to devote more attention to the granting of sanctions, the safety of tracks, the classification and registration of drivers, etc.," says the M. C. A.'s circular calling the meeting. "The present stock-car registration scheme involves a tremendous amount of work and if rigidly enforced will develop an expensive and cumbersome machinery. Should the present stock-car contest policy be so altered as to admit of only four or five annual stock-car events, the problem possibly might be greatly simplified."

The meeting also will take up the matter of commercial car trials and will discuss the rules that have been framed for such affairs.

WAYSIDE STOP OF OCEAN-TO-OCEAN TOURISTS

PROPOSES MOTOR POST COACHES

Washington, D. C., Aug. 7—Representative Thomas Reilly, of Connecticut, has come to the front with a proposition to establish an experimental motor post coach rural service. He has introduced a bill in congress, which is now before the house committee on postoffices and post roads, to appropriate $60,000 for the establishment of such an experimental service for the coming year on a number of rural routes to be determined by the postmaster general.

According to the terms of his bill, these experiments are to be made on routes well graded and macadamized, and are to start from postoffices at or adjacent to a station on a railroad or trolley line. At least twice a day, morning and afternoon, at hours convenient to the public, two motor post coaches, equipped for the transport of merchandise, baggage and passengers, shall make trips in opposite directions from the same postoffice over the same course. Sunday services and additional week-day services may be provided as the postmaster general deems advisable. The speed capacity of each post coach shall be at least 100 miles a day, and one coach may be made to serve two or more routes, the bill provides.

COOK PREPARING LATE DINNER FOR PREMIER TOURISTS

MORE RACES ON COAST

Los Angeles, Cal., Aug. 5—The Santa Monica road races will be held October 14. This date has been definitely decided by the Automobile Dealers' Association, of Los Angeles, and a large entry list has been assured. A. M. Young has been selected as chairman of the race committee, W. R. Ruess is to have charge of the prizes and entries. C. M. Cotton will have the grandstand erected and pass out the concessions. Lewis Schwaebe is to issue the permits and select the guards. One of the handsomest trophies ever offered for a road race in the west is to be fought for in the big event. The Dick Ferris trophy, a $1,000 perpetual challenge cup, is to be hung up again. In the light car event the Leon T. Shettler trophy will be offered. This is a $500 perpetual challenge cup. Teddy Tetzlaff, winner of the Santa Monica road race of 1910, has signed up with the Pacific Motor Car Co. and will drive a 90-horsepower Fiat in the Santa Monica and Los Angeles-Phoenix contests.

Aftermath of the French Grand Prix

HEMERY IN FIAT, GRAND PRIX WINNER

PARIS, July 29—The failure of the French to make any showing in the grand prix race on the Sarthe course, as recorded in cable reports to Motor Age, only has resulted in convincing experts that if there is a big race in France next year it can be held with no other restriction than a weight limit of 1,900 pounds. It has further convinced the promoters of the light-car race that this event must be repeated with the 3 liters cylinder limitation and in addition to the minimum chassis weight a maximum of 1,980 pounds.

The cars which ought to have won the grand prix race were the Rolland-Pilains, having a four-cylinder motor of 4.3 inches by 6.4, which had given 110 horsepower on the bench at 1,800 revolutions a minute, and had attained a speed of 96 miles an hour on the level. They were started with insufficient preparation, but the real cause of their undoing were defective front axles, supplied by an outside firm, for two of these axles broke before half distance had been covered, and the third car was held up by the now unusual cause of magneto failure. As these racers weighed only 2,000 pounds empty, and could average 16 miles to the gallon, there was no reason why they should be held up on a long-distance race for either tire trouble or for filling tanks. The motor employed had its cylinders cast in pairs, with sixteen valves inclined in the head and operated by a central camshaft driven by bevel gearing from a vertical spindle. These were the only cars built specially for the race, the others being a miscellaneous collection of touring cars, old-type racing cars, and racers built under the light-car rules.

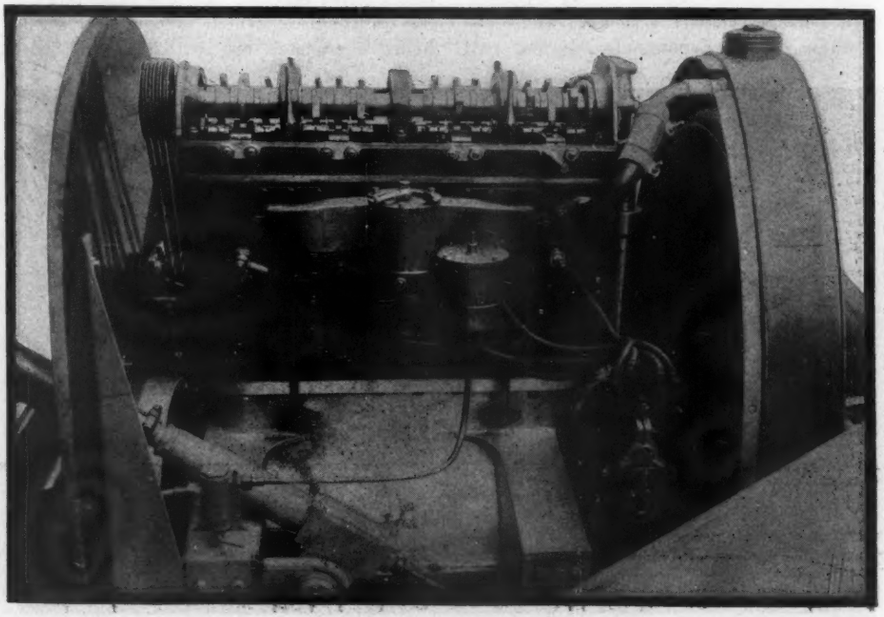
Of the fourteen starters, thirteen finished the initial round, the fastest being Deydier, driving a Cottin-Desgouttes, which has figured prominently in hill-climbs and on the straightaway. Immediately after this round, however, it went out of the race with a broken steering gear. Fauquet, an amateur driver of one of the Rolland-Pilain cars, came in second, but after he had covered a couple of rounds his front axle broke and he overturned on a bend without any personal injury.

Fournier and Mechanic Killed

Maurice Fournier came in third with a Corre La Licorne car which had been built for and run in a grand prix race of 3 years ago. In his own garage at Le Mans, Fournier had overhauled the car, tested it out thoroughly, and, accompanied by Henry Louvel, an amateur mechanic living in the town, had set out with the hope of winning his most important race in his native city of Le Mans. He drove fast, and to the surprise of many held first position during the second and third rounds, and during the two following rounds was second to Duray in the big Lorraine-Dietrich. Then he began to be hard pressed by Hemery on the Fiat, and it was during the sixth round that the brief final struggle between these two men took place.

Hemery began to overhaul Fournier on the straightaway after leaving the grandstands at the end of the fifth round. Inch by inch the Fiat gained on the Corre La Licorne, and seeing that he could not hope to maintain the lead Fournier pulled over to the right to allow Hemery to pass. The Fiat had barely got clear when the front axle of Fournier's car broke in the center, and with the broken ends ploughing into the ground the car plunged on for a hundred yards, to finally dive into the ditch, overturn, and burst into flames. Maurice Fournier was dead when picked up, but his mechanic was at first thought to be in little danger, for there were no broken bones. After removal to the hospital his condition suddenly became more serious and he died during the night.

Hemery had been provided for this race with a standard Fiat touring car having a 90-horsepower motor known as the Savannah grand prix type. The chassis had been intended for the proprietor of a fashionable cafe in Paris, and was to have received a limousine body. Owing to delay, delivery was refused, and by an arrangement with the Michelin Tire Co. it was put in the race. The slight inclination of the steering column, the big dashboard, the heavy springs, the shackles of which became reversed about every 50 miles, were all sufficient to show that the car was a standard model. Hemery had tire trouble at the beginning; later he was unable to use any but his high gear, and in a moment of discouragement declared he would



RIGHT SIDE OF BUGATTI MOTOR

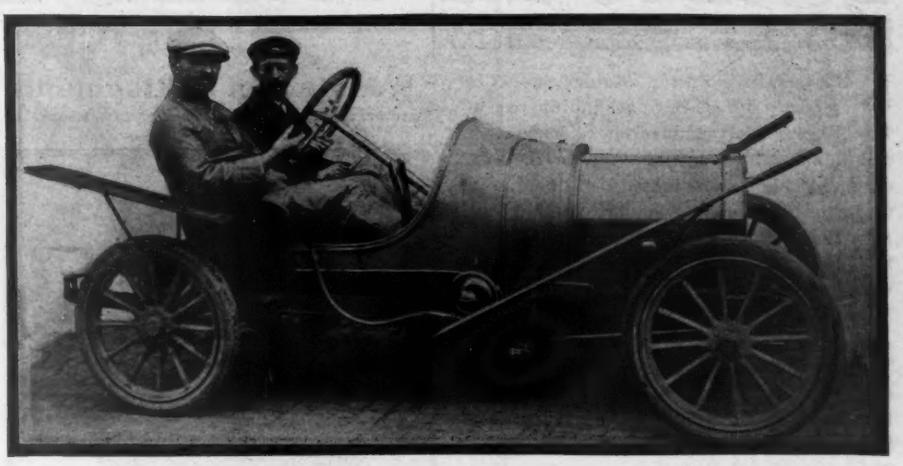
Teaches Foreigners Lesson in Racing

withdraw. He was persuaded to continue and fortunately did so, otherwise the race might have been called off without a winner having been determined.

Duray an Early Contender

Arthur Duray had obtained an old Lorraine-Dietrich racer, built in 1906, which, with its four big cylinders of 7.2 by 6.2 inches bore and stroke, looked altogether out of date by the side of the smaller and equally fast modern cars. Despite frequent stops for tires, gasoline and water, he managed to get into first place on the fourth round, and at the end of six rounds, or half time, had a lead of 8 minutes on Hemery's Fiat. Then his differential went out of business.

The race had been marked by withdrawals all along. The six-cylinder Porthos, a car built for the 1908 grand prix at Dieppe, cracked one of its cylinders; Rigal and Fauquet in Rolland-Pilain cars had gone out with broken front axles; their team-mate, the veteran Gabriel, had been held up over an hour with magneto trouble; Ollier's two-cycle Cote had a burst radiator; Riviere in the Boulogne Excelsior had his spark plugs seized in their seating and broke a timing gear; Barriaux, with the Alcyon, which could not be prepared in time for the Boulogne race, but appeared to be fit for the Sarthe event, quietly dropped out after covering six rounds in a very regular manner. Thus, on the seventh round there really were only three cars in the race—Hemery's Fiat, Duray's Dietrich, and Friderich on the Bugatti; Leduc on the Cote and Gabriel on the Rolland-Pilain were running still, but they were so far in the rear that they might be considered out.



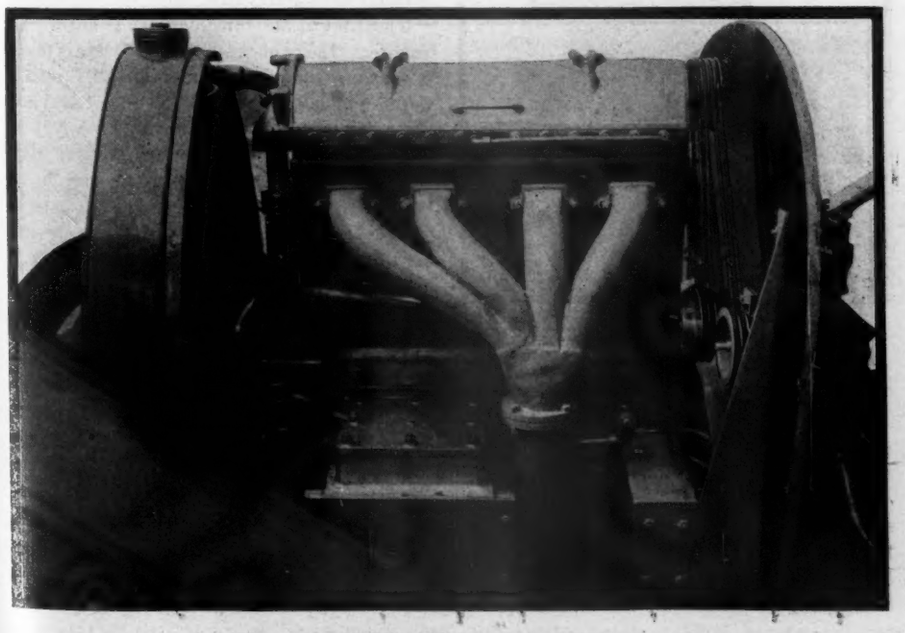
BUGATTI 8-HORSEPOWER WHICH WAS SECOND IN FRENCH GRAND PRIX

When Duray dropped out Hemery had the race in his own hands, and with a lead of over an hour on the Bugatti, he wisely slackened his pace. During the last 2 hours all the interest in the event was provided by the little Bugatti, a car with a nominal rating of 8 horsepower and weighing only 880 pounds fully equipped. By the side of the Fiat and the Dietrich it was a mere toy—a machine that could be lifted up and carried away under the arm. But its 2½ by 4.3-inch motor roared like a machine gun in action, and the way it slipped round the hairpin turn was a marvel.

The heat wave which struck the town on the day of the race was responsible for much of the motor and tire troubles. In the shade the thermometer registered 102 degrees, while on the open road without any shade conditions were as arduous as could well be imagined. Calcium chloride prevented all dust, but the road was terribly cut up, and on some of the turns the loose earth lay 6 inches deep. Half an hour after Hemery came in a winner in 7 hours 6 minutes 30 seconds, having covered the 402 miles at an average speed of 56½ miles, the race was declared off by the authorities. The Bugatti, which was running second, having covered ten rounds in 7 hours 16 minutes 50 seconds, was awarded second prize; Gabriel, who had covered nine rounds in 8:04:38⅘, was given third and Leduc in the Cote fourth, with eight rounds in 6:19:33.

Grandstand Arrangements

One of the best features of the race was the arrangement of the grandstands. The course was a triangular one, starting from the suburbs of the town of Le Mans. The Pontlieu fork had been selected as the position for the stands, which were erected in slightly semi-circular form on the outside of the hairpin turn. Thus from the center of the stands it was possible to look down the left-hand road and see the cars coming at speed towards the turn, and to see them disappear down the right-hand road. The stands were placed close up to the bend, and only separated from the course by double wooden barriers with sand between the two, and sand banked up on the outside. On the inside of the fork was the timer's box, with the scoreboard immediately overhead, and directly in front of the grandstand occupants. It was all so compact that one had the impression of being on a cycle track rather than on a motoring course, and although the cars were not seen at their highest speed, there was plenty of excitement as they took the sharp turn. On the outside of the left-hand road, the one approaching the hairpin turn, were the tire and gasoline stations, fully visible from the grandstands. This was an arrangement which has not previously been adopted for a French race, but is one that has given complete satisfaction.



LEFT SIDE OF BUGATTI MOTOR

Routes and Touring Information

Washington to Richmond

NEW YORK—Editor Motor Age—The recent trip of the pathfinding car of the Touring Club of America to Richmond, which laid out the official route for the first annual good roads convention, is likely to be of far-reaching importance in that it is the first occasion a local touring club has coöperated with the officials of the United States government, with the state highway commissioner and the American Association for Highway Improvement. The first blow is struck in favor of a national highway between Washington and Richmond; and there is no other road in the United States that needs it more. Then there is the sentimental interest in uniting the northern and southern capitals. It is time to repeat, with new meaning, the old blood-stirring phrase of the civil war: "On to Richmond!"

Via Philadelphia, Baltimore and Washington is the direct route generally followed, but there is another optional trip via Staunton, Hagerstown, Harrisburg and Easton that surely will appeal to the tourist who wearies of some of the bad roads in Virginia. And this return trip, although 87 miles longer, may be covered in no less time because of superior roads and the absence of large cities.

New York to New Brunswick, N. J., may be taken as the first move of the motorist. New Brunswick is a manufacturing city interested very largely in harness and rubber. It also is one of the termini of the Delaware and Raritan canal which runs to Bordentown and originally cost $4,500,000. On the banks of the Raritan, New Brunswick perhaps is best known as the seat of Rutgers college. Like much of the neighboring territory, the buildings of the college were burnt by the British during the revolution, but during the present century it has advanced considerably, adding a model farm of 100 acres and the State College for the Promotion of Agriculture and Mechanical Arts.

Leaving New Brunswick on fine state roads, the motorist passes through Monmouth Junction and Kingston into Princeton, the home of Princeton university and one of the chief historic towns of the country. Its name dates from 1724, although the vicinity was settled 15 years before the end of the seventeenth century. It then was Prince's Town. William Penn is responsible for giving impetus to the settlement there by introducing a number of Quaker families, whose little stone meeting house with its graveyard near at hand may still be seen. But for real genuine luster one seeks out the university. Its Nassau hall was used as barracks by British soldiers, then as a stable and again as their fortress. Twice the legislature of the state held its sessions in Nassau and the continental congress fled there to escape the attack of mutinous soldiers in the City of Brotherly Love. The battlefield of Princeton is about a mile and a quarter from the village proper, on the old road to Trenton, known as Mercer street. Here for the first time the patriot army met and defeated the British regular troops.

MONUMENT SHOWING WHERE FIRST SOLDIER FELL IN CIVIL WAR—BARBER CHAIR FOR CONVICTS

Trenton has many historic points of interest, besides a leadership in the manufacture of pottery and fire clay and the command of the market gardening which supplies New York and Philadelphia. The Quaker City, 35 miles beyond on the best route via Langhorne and Bustleton, is noted for its lukewarm hotel interest in touring motorists and for its Independence hall; also its city hall, the largest municipal building in the world, covering 4½ acres, exclusive of the court, and costing upward of twenty millions of dollars.

From the city hall the route to Baltimore and Washington lies west on Market street over the Schuylkill and out to Darby river over some neglected streets. When the smooth road is reached finally, there is that disagreeable experience of the mile-apart toll-gates reaching to Wilmington, where the car crosses the historic Brandywine, near which is recorded at the old Swede's church the first Swedish colony in America. From Wilmington, magnificent macadam stretches to Newark, where Delaware, more progressive than Pennsylvania or Maryland, permits the traveler to enter untaxed. On account of the poor condition of the direct road from Newark to Perryville, the following detour, taken from the Automobile Blue Book, is recommended:

"From three-corners at railroad station, Newark, run straight ahead across tracks on direct road through Appleton, Fair Hill, Blue Ball, into Calvert. Bear slightly right at five-corners and take left fork into Rising Sun. Thence into Battle Swamp into Perryville."

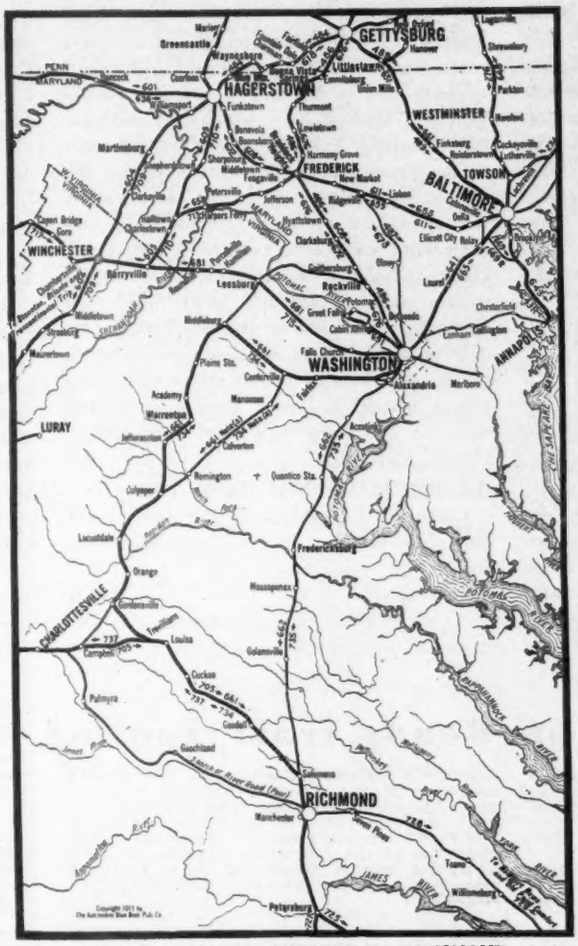
The inevitable toll road leads into Baltimore, the metropolis of Maryland, stretching along the pleasant hills which border a deep estuary of the Patapsco river, 14 miles from Chesapeake bay. A stream called Jones' falls divides the city into two parts. Fires more than wars have been the cause of Baltimore's disasters, particularly the great fire of 1904, devastating an area of business property amounting to 150 acres. Johns Hopkins university, renowned for its high standards in medical training, lies along West Monument street. Baltimore often is called the Monument City because of numerous testimonials to great men or great deeds of the past, and it has numerous parks, the finest of which is the 700-acre tract called Druid hill.

North on Charles street from Washington monument in Baltimore, one takes the best available trunk route to Washington, D. C., 44 miles away, by striking Edmonson avenue and following the picturesque

rolling road into Relay. So odd a name is due to this place having been the station where relays of horses were made on the first railroad built in this country. At Bladensburg is an old tavern, reached after 5 miles of journey road at Beltsville. Thence the route turns right into Maryland avenue, passing through the capitol grounds into Washington.

The pathfinders of the Touring Club of America, by careful study and covering two of the routes between Washington and Richmond, have laid out the following trip, which is entirely practicable, although having some very rough stretches. This trip follows a very direct route to Fairfax courthouse, which is of peculiar historical interest on account of its having been the place where Washington's will was probated in the year 1800, in which year the present courthouse was built. The original will is preserved in the hall of records in a glass case. There also one may see an original letter from Henry Clay and another from Patrick Henry. The old records date from 1742 but the marriage and birth records were destroyed by the Union soldiers. In front of the courthouse is a monument commemorating the killing of the first soldier in the civil war, June 1, 1861.

The route now follows the old Middleburg turnpike, which is, to say the least, an uncomfortable experience. The pike is composed of crushed field stones whose sharp angles remain unsoftened by the hand of time. On the hills, vehicles have turned off the pike and their tracks have cut into the road so that now these side roads will permit the passage only of one vehicle, and they must be entered with caution. At that they are preferable to the bumpy surface of the old pike. At Aldie, 39 miles out, we strike a better road, which takes us through Middleburg, a pleasant little village with tree-lined streets whose overhanging boughs brush the sides of the car. At 45 miles we come



ROUTE FROM WASHINGTON TO RICHMOND
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on the stretch of winding macadam which takes us through Plains, where is located the Orange County Hunt Club. Beyond this is clay road with frequent culverts and stony spots. A 4-mile stretch of macadam again is encountered at Bethel which brings us into Warrentown, where there is a nice little hotel and a new garage. For the ordinary tourist, getting a late start out of Washington, it is recommended to make a night stop at Warrenton. By rising early the next morning the trip can be made easily into Richmond.

From Warrenton the direct road to Culpeper is the worst of the trip. The route across to Remington is therefore recommended. Beyond Elkwood a stretch of macadam is encountered which runs, with the exception of one stretch of clay, across to Waverly. The only bad part between Warrenton and Culpeper is the ford across the Jonah run. This should be crossed low after rains. Culpeper is interesting historically, as several battles occurred in the vicinity, and monuments commemorating these may now be seen from the road which now cuts through the old redoubt. Culpeper harbors some very vindictive motorphobes; and on one occasion a fine of $500 and 30 days in jail was imposed for frightening a horse. On the recent good roads tour a fine of $25 was imposed on the driver of the Packard for alleged speeding over one of the worst roads in all Virginia!

After leaving Culpeper a welcome stretch of macadam is arrived at near Orange. It is only a short distance then to Gordonsville, where much work is being done on the road by convict labor. The barracks of the convicts are to be discovered in the vicinity by the curious visitor. Beyond Gordonsville the road follows the line of the Chesapeake and Ohio Railroad, with numerous crossings which are all more or less dangerous.

At Louisa courthouse the tourist may stop with a comfortable, hearty feeling, for up to date the Louisa gentlemen hold the record for never arresting a motorist. The arrest in that locality is made by the famous Virginia fried chicken, which calls to every inner man. From there the route leads into Richmond after crossing the Chickahominy river and passing monuments to Washington, Jeff Davis, Robert E. Lee and J. E. B. Stuart; and at the Jefferson hotel, containing a marble statue of Thomas Jefferson, the route terminates.

The optional and in many ways preferable route on the return is, as suggested,

CONVICT BARRACKS AT GORDONSVILLE, VA.

OLD BRICK HOUSE AT FAIRFAX COURT HOUSE, VA.

via Staunton and the valley pike. From Richmond out, one passes through Charlottesville, famous as the home of Thomas Jefferson and the University of Virginia. It lies on the beautiful estate at the foothills of the Blue Ridge. Rock Fish gap lies further on the route. Here the early settlers saw and laid claim to Shenandoah valley in the name of the King of England. Beyond is Blue Ridge, whose summit affords a magnificent view of the Alleghanies.

Staunton, Va., to Hagerstown, Md., a distance of 134.3 miles, is stone road practically all the way via Winchester and Martinsburg. There are nineteen tollgates on this run, at each of which a toll of 15 cents is charged. Leaving Hagerstown, the official route leads to Harrisburg via Greencastle, Chambersburg and Carlisle, practically all good pike. There is a variant through Gettysburg for those who wish to visit the memorable battleground or who aim to connect with the national highway at Philadelphia. Fifty-three miles and a half is the distance from Harrisburg to Reading on one of the best roads in central Pennsylvania. An outrageous toll is demanded, however, as is pitifully true of this section of automobile country. Through Allentown we come to Easton, a manufacturing center and the site of Lafayette college. At the forks of the Delaware we pay toll to cross and then wind away over picturesque hills and along brooks to the stretch of macadam which takes us through Morristown into Newark, where one is greeted with a few delectable blocks of cobblestones. Thence to the meadows of marsh and sedge grass across which is Jersey City and beyond which is the ferry into New York city.—Henry McNair.

ILLINOIS-MAMMOTH CAVE TRIP

Rossville, Ill.—Editor Motor Age—I am going to take a trip to the Mammoth Cave, Ky., and am asking for a route from Rossville to that place. Also would like the best towns of interest and the names of the garage owners.—J. T. Zufall.

From Rossville motor to Danville, thence on to Covington, Veedersburg, Crawfordsville, Whitesville, Jamestown, Pittsboro, Brownsburg, and the state capital, Indianapolis. From Indianapolis the shortest route lies through Louisville, Ky., and takes the tourist through Seymour, Uniontown, Cruthersville, Scottsburg, Vienna, Underwood, Henryville, Memphis, Sellersburg and New Albany. It will be found a picturesque route.

An optional and longer route, and one also where many tolls are exacted, lies through New Palestine, Carrollton, Morristown, Rushville, Connersville, Brookville, Cedar Grove, Harrison, Miami Station, Cheviot, Cincinnati, Covington, Crittenden, Williamstown, Corinth, Georgetown, Lexington, Versailles, Frankfort, Bridgeport, Graefeusburg, Paytonia, Shelbyville, Simpsonville, Boston, Middleton, and Louisville. The Official Blue Book supplies this information in its 1911 volume 4.

The remainder of your journey will be

Latest Bulletins on Roads from Touring Club of America

Editor's Note—At the present time scouts representing the Touring Club of America are engaged in studying road conditions in various parts of the country. Herewith are found reports made by them as to the condition of the highways in parts of Canada, the middle west and New England which may prove of benefit to touring motorists.

THERE is no necessity of paying $5 to get in the province of Quebec, Canada. This has been done away with, and all that the motorist has to do is to register his name upon entering the country and then register again when leaving Canada.

According to the new customs reglations in Ontario it is necessary for the car to be in Canada before a license and bond can be issued. The license costs $4 and is good for the year in which it is issued, the bonds are good for 6 months, costing $5, in addition to which there is a $10 deposit, which is returned when the bond is cancelled and returned to me. As far as is known these are the conditions prevailing at Niagara Falls and Sarnia. The bonding company demand the deposit to ensure a more prompt cancellation of the bonds.

Through Canada from Detroit to Niagara Falls, the roads are in fine condition with the exception of the road between London and Hamilton, which is a little rough, but not bad.

From Buffalo, N. Y., to East Aurora, and to Warsaw and Portage, the road is good and affords some magnificent views. There are some hills that are long but not steep.

The road into Dansville is good from Portage, also good to Avon. It also is all macadam from Genesee to Avon and the new macadam from Dansville to Genesee via Mt. Morris is to be opened soon.

There is a detour at East Aurora to Wales Center, but not bad. A new state road being put in there.

From Avon to Mt. Morris it is all macadam and good country road to Warsaw via the high banks along the Genesee river.

There are good country roads from Warsaw to Batavia, also Batavia to East Aurora, from there to Gowanda and Fredonia. This is going to give a good route from Batavia to Fredonia, allowing tourists to make this trip when they do not care to go into Buffalo on their trip from east or west. Fredonia to Westfield, Mayville and Jamestown along east shore of Chautauqua lake are in very fine condition.

Jamestown to Salamanca and Olean roads are in very good shape. They are some mud holes but not bad. The conditions on all country roads are the best seen in 2 years' travel. The road from Olean and Hornell via Cuba is to be all macadam next year.

The route from Chicago to Rockford via Elgin is in excellent condition. The first part to Elgin was in a very worn condition last year but has been fixed up and is now a very enjoyable ride. Swinging out of Elgin the tourist passes over one of the long stretches of the Elgin road race course. From Rockford to Freeport the road is in very bad condition, winding and very rough.

Regarding the road from Freeport to Clinton via Mt. Carroll: The best way is not to go into Savanna but swing south from Mt. Carroll through Argo to Fulton and then on. The road from Mt. Carroll to Savanna is very good, but the road from Savanna down the river to Fulton is very sandy and should not be attempted. This trip from Freeport to Clinton is through rolling country down in the Mississippi valley, the latter part being through very rich farming country with bluffs on the left side. From Clinton to Davenport the road swings down along the Mississippi river and is a very beautiful scenic trip. The road conditions are not as good as might be desired, but as a whole this is a very pleasant run, the latter part down in the valley passing many fine homes on the bluffs.

From Clinton to Dubuque via Charlotte and Maquoketa: The first part of this road after reaching Maquoketa is called the ridge road and literally follows the ridge through this country. The road is excellent and so far above the surrounding country that very distant views on both sides may be seen. From Maquoketa to Dubuque the road passes through very rolling country and is a very enjoyable trip, provided caution is used for several rough, steep hills.

From Dubuque to Madison via Fairplay, Cuba and Douglasville practically is a repetition of the road from Clinton to Dubuque. This is through a very rich farming country and the views are very pleasing all the way. The road is in excellent condition.

From Madison to Oshkosh via Beaver Dam, Waupun and Ripon the road is excellent gravel all the way. There are quite a few views of the many lakes of which Wisconsin boasts. From Ripon a short run can be made to Green lake, one of the prettiest lakes in that part of Wisconsin. From Ripon to Fond du Lac is an excellent road.

From Fond du Lac to Manitowoc via Chilton and Valders: The first part of this journey is along the east side of Lake Winnebago. The road is very good and the scenery along the lake is very pleasing, swinging directly east from the lake is the direct west drive through Chilton and Valders to Manitowoc.

From Manitowoc to Sheboygan the road is excellent and goes through a very rich farming country.

From Sheboygan to Milwaukee two ways are of equal importance, one being from Sheboygan to Port Washington, keeping straight ahead into Whitefish bay, coming into Milwaukee over perhaps one of the prettiest boulevards around that city, with very pleasing views of Lake Michigan.

The other way is to swing from Port Washington to Saukville, then south through Cedarburg and into Milwaukee. This route is over excellent roads all the way and gives perhaps an easier way for the stranger to come into Milwaukee. From Milwaukee to Chicago the inside route, being dirt, is not very desirable, owing to late heavy rains. The shore line through Racine, Kenosha and Waukesha is the preferable route, although it is very rough and rutty in quite a few places. From Lake Forest into Chicago a great deal of improvements have been made in the last few months. This is a very beautiful winding drive with many pleasant views of Lake Michigan.

From Olean to Southport and Ridgway, N. Y.: Dubois on as fine a dirt road as any one would wish to travel on. From Dubois to Punxsutawney there is a very good road. Punxsutawney to Rural Valley a fair road, rough in spots; Rural Valley to Pittsburg mostly a good dirt and paved road, which is being improved; Pittsburg to Washington, Pa., macadam and some poor pike road.

Washington, Pa., to Waynesburg and Morgantown, W. Va., a fair road and traveled by people from Clarksburg, Fairmount and south to North Morgantown, W. Va., to Uniontown on a good dirt road. Uniontown to Mt. Pleasant is a good dirt road. The road from Mt. Pleasant to Bedford is a very poor one in general. The road over Laurel Ridge is in bad shape. There are some very fine views, but as to the road, it is like driving through the bed of a river when dry. There is no chance of going over 12 miles an hour on this trip, taking 5 hours for 65 miles. The road from Bedford to Greensburg via Ligonier is very good until Laurel Ridge and then the same conditions exist for 7 miles up and down the mountain. The entire line is covered with water bars and on the mountains about the only dirt in the road has been drawn in to make the water bars.

The line from Bedford to Greensburg via Ligonier is to be greatly improved before fall, as the state highway commissioner has started on it with 1,000 men and intends putting it in shape so it will be the main line from Pittsburg to Chambersburg.

The route, Bedford to Cumberland, is in very good condition and tourists are sent to Pittsburg and Wheeling from the east via Bedford, Cumberland and Uniontown on the Cumberland pike, which is in fair condition. They also are sent east from Wheeling and Washington via Uniontown. Cumberland to Hagerstown is reported in such bad condition that no one is advised to drive it at night.

New England scouts report they never saw such roads and country, with miles and miles of most interesting scenery and gravel roads that equal the drives into private estates. The best route north is Bangor, Orno, Old Town, Lincoln, Winn, Mattawamkeag, Macwahoc, Haynesville, Limens, Houlton, Littleton; Bridgwater, Blaine, Presque Isle, Carribou, New Sweden, Guevette, Fort Kent. Everyone says the trip from Ft. Kent to St. Francis, at the mouth of the Allagash river, is a wonderful run of 20 miles with fine road and great scenery. The trip down the St. John is magnificent, both as regards roads and scenery.

A fine road runs north from Macwahoc to Silver Ridge, Sherman, Sherman Mills and Patten; from there north the road is straight north through Ashland to Ft. Kent. There practically are no turns, and there is a good road but hilly and through many stretches of uninteresting forestland. There is a fine road from Patten to Houlton via Island Falls, Dyer Brook and Ludlow Station. Practically all the country is rolling with numerous good grades, but all easily taken on high.

through the Blue Grass state. You will reach Bardstown through Fern Creek, and Fairmount, Mt. Washington, Smithville, and Cox Creek. Federal Hill, where "My Old Kentucky Home" was written, is just outside the Bardstown limits, and is a typical Kentucky home. In the old Bardstown cemetery will be found the grave of John Fitch, who built the first steamboat. The natural scenery between Bardstown and New Haven, crossing Beech Fork and Rolling Fork rivers and up Knob creek, skirting Muldraugh's hill, is picturesque. Knob creek is where Lincoln spent his boyhood days, and the schoolhouse is still standing. You will pass through Athertonville to Lincoln farm, then Buffalo, Magnolia, Hardyville, Uno, Bear Wallow and Cave City to Mammoth Cave. Next in size to the Mammoth cave is the Colossal cavern, which you should visit, as well as the Wyandotte cave and Luray caverns.

You will have no trouble in finding garage accommodations in any of the larger cities and towns.

MOTORING TO WHITE BEAR LAKE

Des Moines, Ia.—Editor Motor Age—Kindly publish the best route from Des Moines to White Bear, Minn., and show the way of entering and leaving St. Paul. —J. Wagner.

Follow along the river-to-river road through Altoona, Mitchellville and Colfax to Newton. According to the Automobile Blue Book motor to Laurel, Marshalltown, Ackley, Hampton, Rockwell, Mason City, Manley, Kensett, Northwood, Glenville, Albert Lea, Owatonna, Medford, Fairbault, Dundas, Northfield, Farmington, Rosemount, Westcott and St. Paul. At Westcott pass depot on right; over railroad crossing; pass cross road and pass red brick church on left; pass cross road; take main road and follow wires, curving left at fork; pass cross road and keep left at fork; at end of road go left; straight on South Smith avenue across high bridge over Mississippi river to West Seventh street; turn right on West Seventh street; East Seventh street over viaduct, 2 blocks beyond top of hill; turn to left on Arcade street; straight over second railroad viaduct; take first turn to right and follow the macadam road to White Bear. You can return to St. Paul by way of Bald Eagle, Wildwood and North St. Paul.

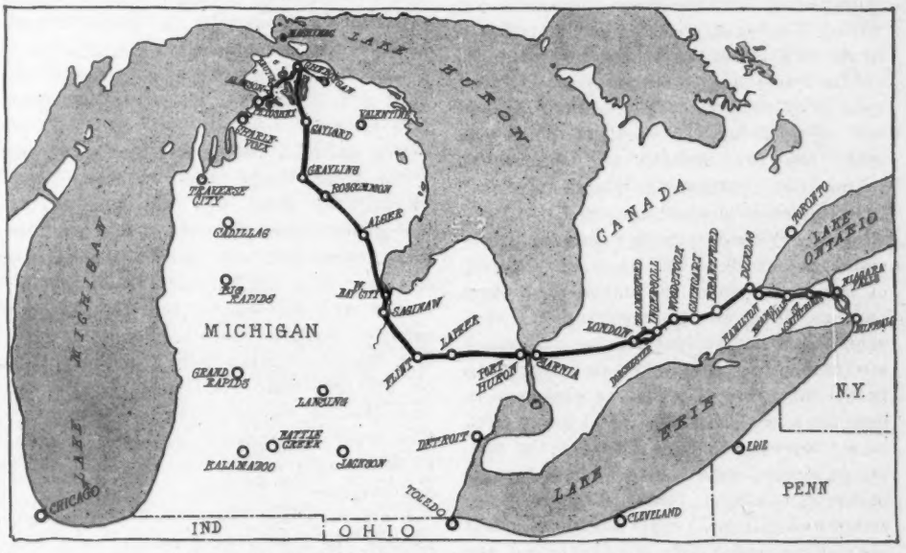
A NORTHERN MICHIGAN ROUTE

Charlevoix, Mich.—Editor Motor Age—I am on a trip east and want a route from Petoskey to Cheboygan, Mich., and thence to Port Huron or Detroit, where the Blue Book takes up the route. I am working to Niagara Falls, but do not care to go back the way I came, via Grand Rapids.—Ed McDermott.

The best information Motor Age can give you on the Petoskey-Cheboygan portion of this route is to follow the route published by the Grand Rapids and Indiana Railroad Co., which is: follow the road which skirts Little Traverse bay to Harbor Springs, going past Ramona Park, Roaring Brook, Wequetonsing into Harbor Springs; then

Miles.	
0	Go north on State street to foot of bluff; turn left, go up long hill to bluff road and follow along edge of bluff past the golf links
3.9	Road turns north inland over a series of hills
4.5	Pass school house on the right; motor straight through four corners at the foot of the hill just beyond.
5.1	Turn left, cross Five-Mile creek; go straight up hill beyond saw-mill.
5.8	Turn right with road; at next three corners, school house on the left
6.9	Turn left up short hill, passing Chief Petoskey's farm on left; coast down long grade about a mile; return to bluff road.
9	Keep to left on shore road.
10.1	Road winds around Devil's Elbow
11.7	Sharp right and left winding turns
12.2	Four corners, keep straight through; Middle Village at left.
13	Three corners, keep straight ahead
13.2	Three corners, keep straight ahead parallel with lake; follow telephone line and pass Goodhart
14	Turn right into woods, then left
15.5	Pass farm house on left, turn right then left through woods
16.7	Road swings right, around an old tree
17.1	Road curves left through woods, farm house on right, clearing on left; three corners turn left, school house on right; three corners turn right
19.7	Log hut on corner, turn left and enter
21	Cross Village; take first right turn go 1 block; turn right
21.6	Go through first cross roads
23.2	Turn right, then left at first four corners; go straight through to
32	Levering; cross G. R. & I. tracks and go up hill at right taking the second left turn out of the town; turn right with road
33.7	Turn left following telephone poles east
38	Pass one three corners and keep straight ahead
41	Pass through Hebron
42	Go straight through next four corners picking up a fine gravel road into
50	Cheboygan.

From Cheboygan go south to Gaylord, Frederick, Grayling—a trout fisherman's paradise—Roscommon, West Branch, Algen, Standish, Pinconing, Bay City. At Bay City you strike the Blue Book route to Flint, 48.7 miles, which is through Saginaw, Bridgeport, Pine Run, Flint. Motor Age suggests that you make Niagara Falls, your objective point, by the Canadian route from Flint, via Port Huron, London and Hamilton, Canada, rather than take the longer route via Detroit, Cleveland and Buffalo. Such a route would be: Flint to Port Huron, 74.2 miles, through Lapeer, Attica, Imlay City, Port Huron. Port Huron to London, 63 miles, over well-kept gravel road most of the way, passing through Kertch, Warwick, Adelaide, Lobo, Hyde Park, London. London to Hamilton, fine farming country, going through Thamesford, Ingersoll, Beachville, Woodstock, Brantford, Ancaster, Hamilton. Hamilton to Niagara Falls, Ont., 50.5 miles, over excellent roads, through Winona, Grimsby, Beamsville, Jordan, St. Catherines, Homer, St. Davids, Stamford, Niagara Falls, Ont. If you desire to cross over to the falls on the New York side, cross steel arch bridge over the Niagara river, toll 25 cents; turn first right beyond the bridge on the riverway to the Monument, foot of Falls street. On reëntering the United States you should take special care to have your duplicate Canadian bond properly certified by the United States customs and the same returned promptly to the customs house broker issuing same to the motorist.



MAP FROM PETOSKEY, MICH., TO NIAGARA FALLS

BETWEEN ARGENTA AND WEST BADEN

Argenta, Ill.—Editor Motor Age—Will Motor Age through the Touring Information department give me a good route from Monticello, Ill., to West Baden, Ind., via Terre Haute? State the road conditions between Terre Haute and Paoli.—Reader.

From Monticello the best route is, according to the Blue Book, to go to Champaign through Savoy. From Champaign go through Urbana, Homer, Catlin, to Danville, over good country gravel road; thence to Terre Haute over gravel road, through Perrysville, Cayuga, Newport, Clinton, Ellsworth, Terre Haute.

Leaving Terre Haute for West Baden, over good gravel road to Vincennes, 63 miles, you will pass through Sullivan, Paxton, Carlisle, Bruceville, Vincennes. Vincennes to West Baden, 64 miles, go through Wheatland, Washington, Cannelsburg, Loogootee, Shoals, Huron, Mitchell, Prospect Corners, West Baden.

The Readers

Southerners Answer Criticisms From North

LEXINGTON, Miss.—Editor Motor Age —I have just read the curious narrative of a northern explorer of that terra incognita—the south. The article appears in the issue of July 27 of Motor Age and is very appropriately headed "The South As Seen Through Goggles," by H. G. Woodward. His goggles must have been covered with dust, his impressions of the whole south and its people gathered on a trip in a motor car through a small section of it, and so candidly and naively told, remind me of the French or English traveler who after his return from a 2 weeks trip to New York and Boston writes a book on the "Life, Character and Customs of the American People."

It will, no doubt, be a relief to the readers of Motor Age who have been bored in the past with technical descriptions of motors and machinery, spark plugs and carbureters to see a real literary flavor imparted to that excellent journal by our friend Woodward in his article contributed to the new fiction department.

I have often been tempted after returning from a visit north to write my impressions and opinions of the northern people as seen from car windows and rubberneck wagons but I refrained. When your street car conductors insulted me and I saw traveling hogs refuse seats to women in public conveyances, the utter lack of courtesy of the street mobs, the impudent waiters and servants, or the insulting stare of silence or brief reply from the questioned one, teaches the southerner on a trip north to be very careful whom he presumes to stop for a civil inquiry. But I never tried to get my experience into print. On coming in closer contact with the northerners in their homes, I found them to be a clever and cultured people and that I could not judge them fairly by the crowd the traveler generally comes in contact with.

There are no doubt such conditions as he describes to be found in the south, especially in parts of Kentucky, the mountains of east Tennessee and of North Carolina, but I do protest that such a wholesale indictment of the entire south is not sustained by the facts. There is no more ignorance and illiteracy among the southern people, excluding the negro population, than is to be found in the north and east. It is true that most of us are not rich as judged by northern standards. We have poor roads in a good many parts of the south, though in some portions of all our states there are roads not excelled anywhere in the United States in country districts. We are poor because of the sparse white population as compared with the negro population.

The south is only beginning to recover from the war and, what was worse, reconstruction after by the carpetbagger and the negro. According to this critic who has enjoyed our hospitality, our hotels, except in the few large cities, are conducted in "country nigger" style. "The food is abominable; the men sit around, chew tobacco, talk politics and litter the floor; the average southern man is utterly helpless to do anything with his hands; they are not good mechanics, etc.; the southern girls do not know how to cook and the women chew snuff; the people do not speak the English language so the northerner can understand it. I see no reason to think that the southern men really regard women as highly as do northern men; they stare strange women out of countenance; the planters dress like hobos and the kitchens of the southern women are unfit to be seen by the guest because of the filth and grease."

The above impressions as recorded are only a few samples I have culled from this article.

The southern people are tired of being "discovered" and their country "explored" by those who look upon us as curiosities. One might think that we were alien people who talk like Guinea negroes and live like Digger Indians, to be observed and studied by the traveler and reported back to his ethnological society.

A friend of mine from Galesburg, Ill., on his first visit south remarked to me once that he was surprised to see so many blue-eyed, fair-skinned men and women, as he thought most of us were black like a Portuguese or Sicillian.

I am surprised that Motor Age should publish the article in question, as it can not fail to offend by its crass ignorance and misrepresentations its many southern readers. I would not willingly believe that Mr. Woodward means his words maliciously, so I invite him to come down to Mississippi and I will show him pretty, intelligent and well-to-do southern girls who can cook and keep a clean house and who do not chew snuff—men of education who can work with their hands and speak the English language so even he can understand, and many other wonders too numerous to mention. What I say unto him, I say unto you all, come down and visit with us and as many of you who are tired of hard, cold winters and raising only one crop a year on your land, come prepared to stay where land is cheap and fertile and you can raise many crops in a twelvemonth. There are some here now from your country who have made prosperous and happy homes, who love and are loved by their neighbors. Please publish this in Motor Age.—Hal A. Gilliam.

FIG 1—REMY MAGNETO

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

TRY IT WITHOUT GOGGLES

Chicago—Editor Motor Age—We would suggest that if Mr. Woodward is mentally and physically equipped to see clearly without goggles he dispense with them when next on a motor trip. If he needs something of the kind to see at all let him get a pair that will give him a clearer and truer vision of the country through which he travels, either north, south, east or west. Observations of provincial minds often mislead the general public.—G. S. Semmes.

DEFENDS THE SOUTH

Chicago—Editor Motor Age—As a southerner I cannot allow H. G. Woodward's article on "South Seen Through Goggles" printed in Motor Age, July 27, to pass my notice without commenting upon it.

First, I believe that inasmuch as your trade magazine is published not for the exclusive use of northerners but for the whole trade in general, that it is injurious and detrimental, looking at it from your standpoint, to print such articles. Most assuredly is it injurious when we consider what these two sections of the country have passed through in the past 50 years. Hardly has the hatred died away, before in the columns of Motor Age I read what could be termed "again waving the red flag."

Mr. Woodward may be a scholarly gentleman, but his article certainly lacks judgment. Had he said that only on his trip to Birmingham he had encountered such

Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

"South Through Goggles" Arouses Men in Dixie

an experience, I would have overlooked what has been said. Instead, he writes, "everywhere in the far southland excepting in a few large cities," which gives one the impression that he had traveled throughout the south, and if he has, his article does not substantiate itself, for he only speaks of traveling as far as Birmingham; and through this section which he traversed I will agree with him that there are some people of humble origin, just as there are in any other undeveloped mountainous section—for instance, in Pennsylvania, the miners; in Vermont and southern Indiana, ignorant classes. I believe that the good people that he spoke of visiting, while they may not be as highly educated, undoubtedly have more politeness and endeavor to do those things which are right than he himself. He has accepted their hospitality, he has accepted everything they could give, and has returned the hospitality by writing an article which is without foundation, of the south in general.

I do not wish to go into detail as to his article, but I do wish to say that the hotels of the south compare favorably with any hotel in the north in towns of the same population; that women also compare favorably.

The men likewise compare favorably, and we meet quite a few here or in any part of the country that stare at women. Only some few days ago the writer was very much disgusted by several men of a fashionable hotel staring at a young woman, and these men were supposed to be cultured, but still it would have been foolish to have belittled all the northern gentlemen by classifying these men as one of their type.

My purpose in writing the above is simply to show you wherein we southerners who are constant readers and ardent admirers of your paper feel offended when you allow such an exaggerated article by such a man as Mr. Woodward to come before the public in the columns of Motor Age.—William P. Pollitzer.

ADVANTAGES OF AIR PRESSURE

Evansville, Ind.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me what, if any, are the advantages of air pressure in the main gasoline tank? Kindly advise how same could be obtained in a Cadillac 30.—Reader.

The advantages of air pressure in the main gasoline tank are that an adequate supply of fuel may be maintained in the float chamber of the carbureter, regardless of the position of the tank, or the angle at which the car is traveling. Pressure feed only is used on cars whose main supply tanks are suspended below the level of the carbureter or in such a position that the fuel would not flow to the carbureter by gravity. The tank of the Cadillac being located under the seat is sufficiently high above the carbureter to insure a supply therein on almost any grade that the car can climb. Air pressure, therefore, is quite unnecessary. It could be obtained, however, by fitting a hand pump and a means of closing the air vent in the filler cap, and an auxiliary tank arranged above the carbureter from which the fuel could flow to the carbureter by gravity. If to be used only on very steep grades, the auxiliary tank would not be necessary, the pump being operated as fast as the carbureter required.

GET A NEW SEGMENT

Portland, N. D.—Editor Motor Age—I have a new Rutenber motor equipped with Remy magneto which causes some trouble. In cranking the motor when turned to the battery side the motor nearly always turns backwards but seldom backfires or kicks, but simply turns a few times and stops. After it is started it runs all right. It does not make any difference whether the spark is advanced quite a lot or retarded clear back, it is just the same.—B. E. Rockney.

If you will communicate with the Remy makers stating the nature of your trouble, and have them send you one of their 1911 distributer segments, and attach it to your magneto in place of the one which you now are most probably using, your trouble undoubtedly will be eliminated. In the distributor box D, Fig. 1, of the latest improve Remy magneto, the revolving segment T is so designed that with the circuit-breaker box C in a retarded position, all possibility of a back-kick is eliminated when pumping of the starting crank is employed to facilitate starting the engine.

Fig. 1 shows the distributor segment T revolving in a clockwise direction, with the circuit-breaker box C in the fully retarded position. This is the actual condition when the piston of one cylinder is on top dead center just commencing the firing stroke. A slight further movement of the crank will cause the platinum contacts P to break the circuit and a spark will be produced at the plug of that cylinder. Now, in case a person cranking the motor does not crank it over far enough to produce this spark, but due to the high compression of the motor the crank is allowed to rock back, then a spark will be produced when the contact of the platinum points is broken by the trailing edge of the circuit-breaking cam K as the motor rocks back. This separation of the contact points occurs approximately 60 degrees before dead center, as indicated by the dotted outline positions of the cam and distributer segment; here the platinum contact points are shown as just having separated and the distributer segment is opposite the high-tension point leading to the spark plug of the cylinder, which is on the exhaust stroke, and there is no possibility of a spark occurring in the cylinder which is under compression.

You state that the motor seldom backfires or kicks, but generally turns backwards a few turns after trying to start it. This is because the first explosion that occurs is too weak to overcome the compression pressure of the next cylinder to fire, and the same rocking-back takes place as is sometimes employed in cranking; the result is a back kick that causes the motor to revolve backwards several times.

WINTON GASOLINE TANK

Victoria, B. C.—Editor Motor Age—Will Motor Age through the Readers' Clearing House columns kindly answer the following questions:

1—I have a 1910 Winton six and the gasoline is sent from the rear tank to the little one on the dash by air pressure. The air pumps too strongly—at least that is what I put it down to be, for if I run idle, throttled down, the gas just pours out of the little tank and runs all over the footboards. I have altered the spring which regulates the bypass but without success, and now I have taken it out altogether, but still it leaks although not as badly. How can I fix it?

2—If I leave my car standing for a little while and then go to crank it, I find it hard to start, and when it does, it runs in jumps for a little while, but picks up all right again. I figured this out to be oil on some of the plugs, for numbers one

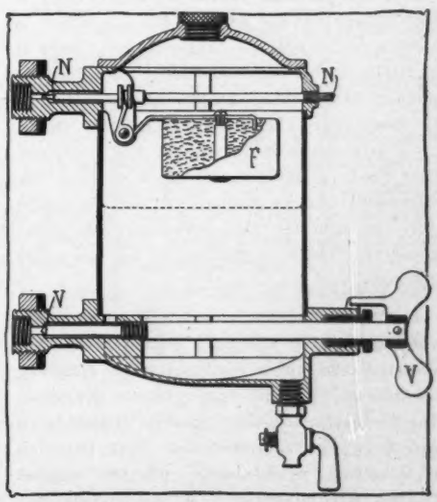


FIG 2—WINTON GASOLINE TANK

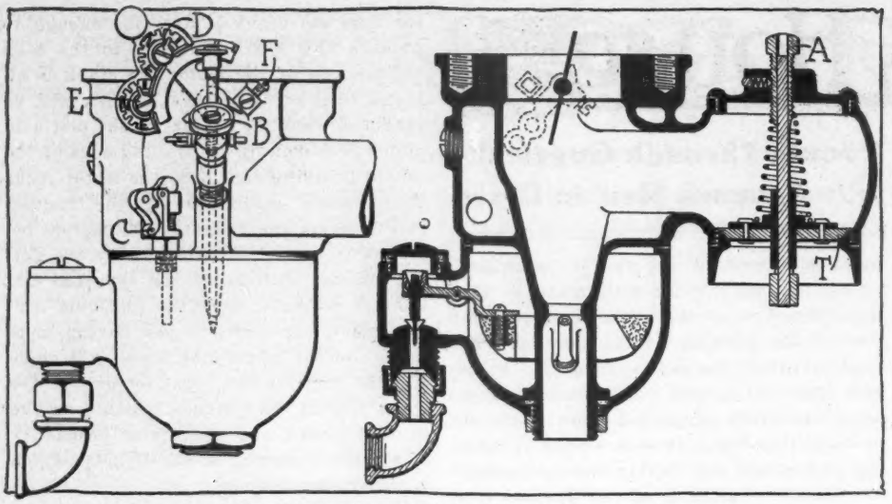


FIG. 3—ADJUSTMENTS ON MODEL L SCHEBLER

and two are always soaked with oil. Am I right, and why should this be?

3—With my motor running along lightly there is a tapping noise and when I come to a grade it gets worse until it develops into a loud knock regardless of spark position, and I have to close my throttle almost shut before I get it normal again. What causes this and how can I remedy it? —Victorian.

1—In Fig. 2 a sectional drawing of the Winton auxiliary dash tank is shown; this will aid in pointing out to you the cause of your trouble. The trouble is due to failure of the float valve N to close tightly; thus the gasoline keeps feeding into the auxiliary tank even after the motor is stopped. While the motor is running the gasoline is drawn from the auxiliary tank just as fast as the supply from the large tank is fed into it, consequently there is no leakage while the car or motor is running. The remedy is to remove the cover of the auxiliary tank, loosen the collar on the needle valve N that operatively connects it to the lever of the float F, then withdraw the needle valve N, apply powdered pumice stone and oil mixed to a pasty consistency to the end of it, and then replace the valve and rotate it back and forth while holding it lightly against its seat. This operation is known as grinding in the valve. There is a little cotter key in the collar on the needle valve that can be easily removed to disengage the collar from the valve. It is advisable to disconnect the top gasoline feed pipe from the tank so that the valveseat can be flushed off with a squirt gun to remove the grinding compound after the valve is ground in by the usual methods.

2—Your trouble in starting most probably is due to the fact that you do not shut off the valve V tightly on stopping the motor. If this is not done, the gasoline from the auxiliary tank will run down and flood the carbureter so that too rich a mixture is obtained and the engine flooded with gasoline. After getting the motor started the proper fuel levels soon are obtained and the motor begins to operate as it should.

3—The knocking is most probably due to a loose piston pin, or perhaps even a loose connecting-rod bearing. To eliminate this it will be necessary to remove one-half of the motor crankcase, locate the loose rod or piston pin, and then on finding the loose bearing having the lost motion removed. If it is in the piston pin, a new pin or connecting-rod bushing will have to be fitted or both; and if the rod is loose at the crankshaft end, the lost motion must be eliminated by removing a couple if shims, little pieces of metal or fiber used to separate the cap from the rod proper; or if there are no shims, either a new bushing must be fitted into the rod and scraped to fit, or the cap must be filed a little so that it grips the crankshaft tighter.

ADJUSTING A SCHEBLER

Geneseo, Ill.—Editor Motor Age—Kindly tell me through the Readers' Clearing House how to adjust a model L Schebler carbureter.—F. E. Richmond.

Before adjusting the carbureter make sure that your ignition is properly timed, and that you have a good hot spark at each plug; that your valves are properly timed and seated, and that all connections between your intake valves and carbureter are tight, and that there are no air leaks of any kind in these connections.

In adjusting the carbureter, first make your adjustments on the auxiliary air valve A, so that it seats firmly but lightly at T; then close your needle valve by turning the adjustment screw B to the right until it stops. Do not use any pressure on this adjustment screw after it meets with resistance. Then turn it to the left about a turn and a half and prime or flush the carbureter by pulling up the priming lever C and holding it up for about five seconds. Next, open your throttle about one-third, and start the motor; then close your throttle slightly and retard your spark and adjust throttle lever screw F and needle valve adjusting screw B, so that the motor runs at the desired speed and hits on all cylinders.

After getting a good adjustment with your motor running idle, do not touch your needle valve adjustment again, but make your intermediate and high-speed adjustment on the dials D and E. Adjust pointer on the first dial D, from figure No. 1 toward figure No. 3, about half way between. Advance your spark and open throttle so that the roller on the track running below the dials is in line with the first dial. If the motor backfires with the throttle in this position, and the spark advanced, turn the indicator a little more toward figure No. 3; or if the mixture is too rich, turn the indicator back or toward figure No. 1 until you are satisfied that your motor is running properly with the throttle in this position, or at intermediate speed. Now, open the throttle wide and make your adjustment on your dial E for high speed in the same manner as you have made your adjustments for intermediate speed on dial D.

It is found that in the majority of cases in adjusting this carbureter the tendency is to give too rich a mixture. It is suggested and recommended in adjusting the carbureter, both at low, intermediate and high speed, that you cut down the gasoline until the motor begins to backfire, and then increase the supply of fuel, a notch at a time, until the motor hits evenly on all cylinders. Do not increase the supply of gasoline by turning the needle valve adjusting screw more than a notch at a time, in your low-speed adjustment, and do not turn it any after your motor hits regularly on all cylinders. In making the adjustments on the intermediate and high speed dials, do not turn the pointers more than one-half way at a time between the graduated divisions or marks shown on the dials. By following these instructions the adjustment should be satisfactory.

CARBURETER ADJUSTING

Good Hope, Ill.—Editor Motor Age—In the Readers' Clearing House will Motor Age answer the following questions?

1—Kindly give instructions for adjusting and tuning a model L Schebler carbureter.

2—How do you adjust the compensating air valve?

3—What should one do when the machine runs well on the level but does not pull well on hills?

4—And when it uses too much gasoline? I would appreciate full instructions on all points so that a novice can adjust.

5—What are the disadvantages of a two-cycle engine?—M. C. Pollock.

1—2—Both these questions are covered in the inquiry immediately preceding this one.

3—See that the compression is good, the ignition right and the lubricating oil of a good grade and supplied in sufficient quantities. If the compression is poor, a loss of power will result. Leaky valves,

stuck piston rings or worn pistons and cylinders are common causes of loss of power. If you have been using a good grade of gasoline and accidentally gotten hold of a poor or stale supply, this might be the cause of your trouble. If your valves have been ground in recently, be sure that there is sufficient space between the valve-lifters and valve-stems; this space should be from 1-32 to about 1-64-inch when the motor is cold.

4—If there are any air leaks around the valve caps or cages, or around the inlet pipe connection an over rich mixture will be required before the motor can be made to run regularly at slow speeds. Full instructions are given in the answer to the preceding inquiry.

5—Lack of flexibility has been the chief disadvantage of the two-cycle motor when used as a source of power in a motor car; but recent developments in the two-cycle field have practically eliminated this disadvantage.

NICKELPLATING BRASS

Shreveport, La.—Editor Motor Age—Will Motor Age kindly publish a receipt or preparation for nickel plating brass, etc.? Will I be able to do this, or must it be done by some one with more knowledge of that kind of work?—R. A. Crain.

To secure a durable coating of nickel on brass, an electro-plating process is necessary, which requires the use of special equipment and treatment by experienced workmen. It would be far more practical and cheaper, therefore, to put the work in the hands of some electroplater. Of course if you have considerable work of this nature to do, it might pay to purchase an outfit and hire an electroplater to operate it.

CONSTRUCTION OF SPARK PLUGS

Lindsborg, Kan.—Editor Motor Age—In the questions and answers of the next issue will Motor Age describe in detail?

1—What constitutes the ideal spark plug?

2—What is the advantage of porcelain over mica, or vice versa?

3—What constitutes the ideal gasket?

4—What is the correct alloy for electrodes?

5—In other words, what are the obstacles to be overcome in the construction of a perfect plug?—P. E. Zimmerman.

1—The ideal spark plug is one that never requires attention; one whose insulation is principally unbreakable and impregnable to the passage of electric currents, whose sparking points are never fouled or short-circuited by accumulations of oil, water, soot, dirt or oil, and whose terminals never allow the high-tension cables to become loose or disconnected.

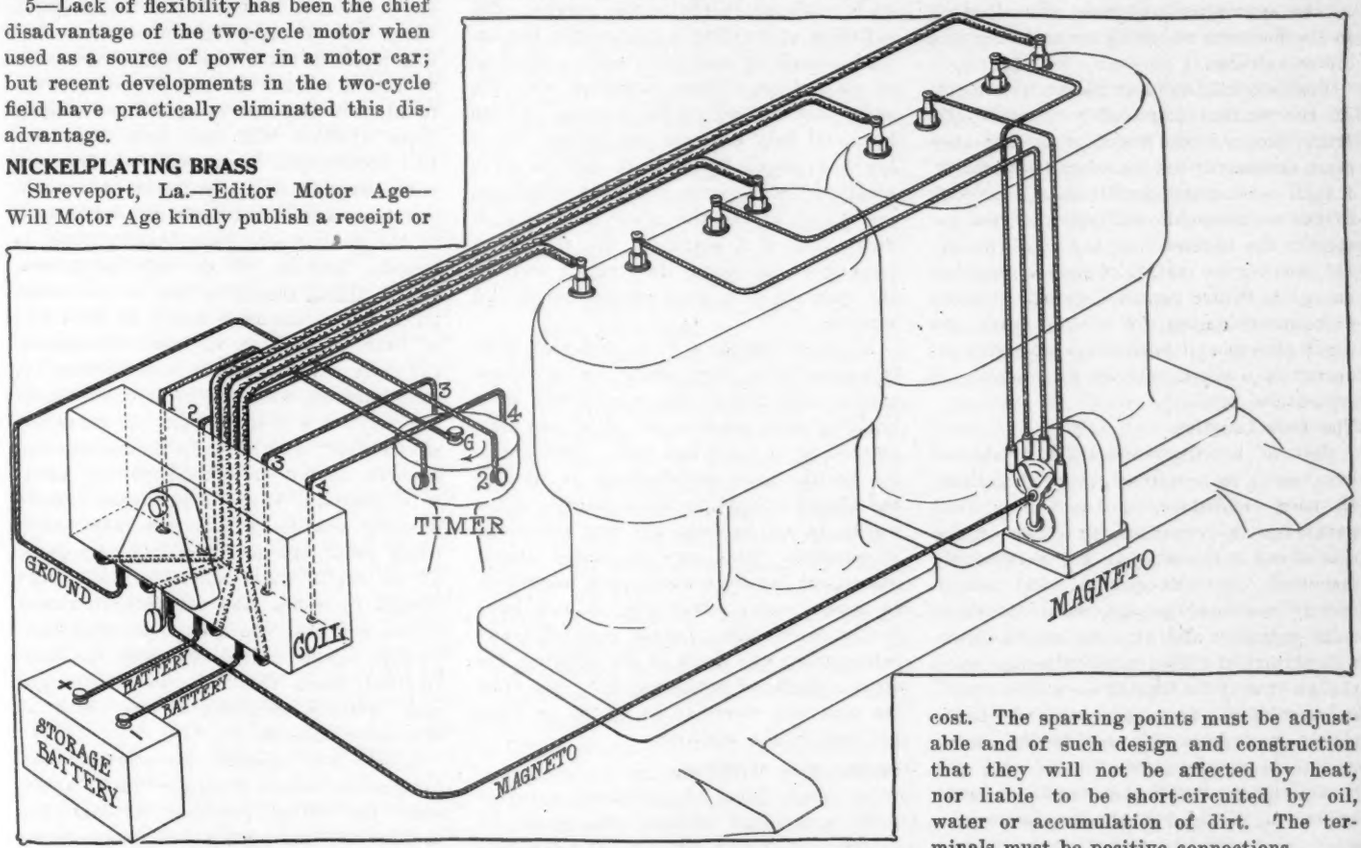


FIG. 4—WIRING DIAGRAM OF SELDEN DOUBLE IGNITION SYSTEM

2—Porcelain is a more positive insulator than mica as used in the insulation of spark plugs; having become the most popular, the manufacture of porcelains has been developed to such a degree that a better insulation is obtained at a smaller cost. There are, however, many users of mica plugs who have had exceptionally good luck with them and would have no others.

3—The ideal gasket is one that can be obtained at a reasonable cost, that is absolutely gas-tight, and which will last forever; in short, a gasket that always makes a tight joint and is indestructible is the most desirable one.

4—Motor Age cannot give you data regarding the materials used in the make-up of the ideal plug. The combination is yet undiscovered; and those makers whose products most nearly approach the ideal are themselves ever on the alert for materials or designs that will enable them to make a better plug.

5—The obstacles are as follows: The insulating material must be such that it will withstand the high temperatures, the strains from expansion and contraction due to varying temperatures, and the blows and strains to which it is subject when a wrench slips and strikes it, or when the binding nuts or sleeves of the casing or shell are tightened. The material employed in their manufacture must be such that the plug can be made at a reasonable cost. The sparking points must be adjustable and of such design and construction that they will not be affected by heat, nor liable to be short-circuited by oil, water or accumulation of dirt. The terminals must be positive connections.

OFFSET ON SELDEN CRANKSHAFT

Johnstown, N. Y.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions:

1—How must offset is there in the crankshaft of the 1910 Selden cars?

2—Please show diagram of the complete ignition system, including the two sets of plugs, coils, grounds, etc., of the Selden 1910 car.—A Subscriber.

1—The crankshaft of the 1910 Selden motor is offset ⅞ of an inch.

2—A wiring diagram of the double ignition system used in this motor is shown in Fig. 4, the heavily insulated secondary or high-tension wires being represented by the heavy lines, and the primary or low-tension wires by the lighter lines.

Garage Problems in Small Cities

Hints and Suggestions for Storage of Cars in Towns of from 30,000 to 50,000 Population Are Given

By Wellington H. Shay

ALREADY garage accommodations are inadequate almost everywhere, and this year alert business men in nearly every small city will seek information as to the approximate expense of embarking in the business of caring for and repairing motor vehicles.

Business conditions and the requirements of the smaller city differ so materially from those of the larger ones, that they must necessarily be considered separately. I shall confine this article to a discussion of the requirements and policy of the garage in the smaller city, say 30,000 to 50,000, leaving the matter of the metropolitan garage to future papers, together with the problem of caring for electric cars, the rapid growth and importance of which industry may necessitate its discussion in a separate article.

The Best Location

Cost of location cannot be considered here, as it is a matter governed entirely by local conditions, and so far as local patronage is concerned, in cities of the size above mentioned, is not particularly essential. A well-equipped and conveniently arranged garage, where work is done promptly and at a reasonable price, will attract and hold local patronage even though it may be located on a side street. In view of the frequency with which the motor cars from the neighboring towns will come to and through your city, and because of the vast and increasing amount of touring indulged in by motorists everywhere, it is well to select a location on one of the main thoroughfares leading into the city; preferably the street most chosen by tourists passing through town and close to your best hotel. The reason for this is, that people of your vicinity will know your location and will patronize you accordingly as you please them, while the tourist and visiting motorist are nearly always dusty, tired, hungry, or in need of assistance and will usually stop at the first place which seems prepared to minister to their needs. One thing to particularly bear in mind is that you will spend too much money on your building and permanent equipment to justify you in taking a poor location if a good one can be secured for a few hundred dollars more. One thousand dollars added to the cost of your location will only mean that the higher-priced one must be worth enough more to you to pay the interest on the increased cost.

In smaller cities nearly all car owners have their own barns or housing sheds, but with the growing winter use of machines there is a tendency toward the housing of such machines in the public garage. The difficulty of starting a cold motor, the unpleasantness of working around a machine in an unheated place, together with the usual lack of heat in the average private barn, all help to force the winter driver to your place; hence it is well to have plenty of room, even though the garage, in the city of the size under discussion, is now more of a place for the temporary housing of machines, their repair and for the carrying of a stock of accessories and supplies.

A corner location is to be preferred, even though it be an alley corner, for the reason that it will permit the construction of a building with windows all along one side, as well as in front and rear. Daylight is by far the most satisfactory, as well as the cheapest light, so have plenty. Have a side, as well as front and rear entrances, if possible. Cars may be stored closer, gotten out far more easily, and worked on to much better advantage, if you have two or three exits. Locate your office and salesroom in the front of the building, for many a dollar of patronage will come from the man who wants to be waited on from his seat in the machine.

Construction of Garage

In these days of advanced concrete work, a fireproof building can usually be constructed of this material, at a less cost than of any other. One-story construction is to be recommended where possible, because ground space usually costs less in a small city than the heavy I-beam construction necessary to avoid pillars or posts in the main floor of the building. Posts or pillars are a great source of annoyance, cut up your space and hamper you in the quick handling of cars. Use one-story construction, except in the front, over your office and salesroom, and you will not only avoid much danger in handling cars in narrow spaces, but will also be enabled to place two or three skylights in the roof. These will aid materially in working to advantage on many a dark day.

A two-story front will add much to the appearance of your place, and the space above will make a nice lounging room for chauffeurs and others. These time-killers, with nothing to do but smoke and talk from one meal to the next, can be found in every city, and if they loaf in your office and salesroom they will interfere with business. By means of it you can more easily prevent loafing in the repair room, which is very annoying, and if not curbed will result in much loss of time and tools, as well as subject the cars of your patrons to all sorts of petty abuses. The lounging room upstairs will cost you little and will enable you to make your business your own without appearing to be a crank.

A basement is not recommended, except in the rear, where your heating plant is located, because, to be easy of access, your building should be close to the street level, and a basement would be dark and of little value, and it would necessitate far more expensive floor construction. A good concrete floor can be laid, in almost any city, at a cost of about 12 cents per square foot, and if properly sloped and sewered cannot well be improved upon. It is sanitary, easily kept clean, and, if properly put down, will last indefinitely, being proof against damage by gasoline, oil or acid. Build the side walls high enough to insure ease of ventilation, and if you find that you need some additional storage space a balcony may be constructed, along the dark side of the garage, without prejudice to the value of the space beneath it.

Locate an underground storage tank for gasoline where it will be easily accessible for filling purposes without the necessity of having the tank wagon drive inside the garage. Arrange to store not fewer than 500 gallons of gasoline, as nothing so exasperates the car owner as to ask for gasoline, preliminary to taking a planned excursion, only to be told that you are out of it. Electric power is so universal and so cheap that in most cases a power plant will not be necessary. A motor will be all you will need. So place it that it will not be in the way and where it will take the least belting to connect it with your line shaft.

Install Washing Facilities

Install a wash-rack with swiveled, overhead hose connections; have it properly sewered, with a catch basin for dirt, and so situated that it will be easy of access, but where the dampness attending its use will not damage the tools or machinery.

Carry a good brand of light, and one of medium lubricating oil and a medium

oil of cheaper grade, in metal tanks. Although the better makes of oil tanks are expensive, there is no waste or leakage attendant upon their use, and the pumps and gauges with which they are equipped will enable you to handle the oil without spilling it or soiling either yourself or the floor; also permit you to keep better track of what is sold by employees in your absence. They will also post you daily as to what you have in stock. It is well to carry a good grade of medium oil in gallon cans also, as many patrons prefer to buy in that way in the first instance, and thereafter return the can for refilling. A half barrel of cup grease, one of non-fluid oil, and one of a cheap grade of heavy lubricating oil, will enable you to care for ordinary demands, while you study your trade for additional oils for which you have sufficient demand to justify purchase. Lay in a stock of cheap tin pails, of 4 or 5 pounds capacity, for the easy handling of greases, filling them from the barrels as occasion demands.

Suggested Garage Equipment

Under the heading of equipment, the average man will first think of a long list of machinery and tools, but herein lies one of the greatest mistakes of the motor car business. The first requisite of a successful garage repair room is a high-class mechanic. Given the best of tools and machinery, the poor mechanic will only prove a vexation and an annoyance, a delusion and a snare. He will keep you constantly making excuses to your patrons, rebating their bills, and will give your place a bad reputation it will take a good many months to overcome. First get a good man, for you cannot stay in business and succeed without one. A first-class mechanic will earn for your place the confidence of your patrons, and therein lies much of your opportunity to sell them supplies and accessories, upon which you must depend for a large part of your profits.

Go slowly in the selection of your tools and machinery, that you may not be loaded down with things you will use so seldom that the profit on use will not pay a reasonable return on investment. Consult your mechanic before buying second-hand machinery, for only the expert is competent to distinguish between the slightly used and the much abused machine.

There will be occasions when work will come to any shop of ordinary caliber which cannot be handled with the space, force, or the machinery at its disposal; still, you will find that with the machinery listed hereafter you will be able to care for about all the motor car repair work which will come your way.

The Machinery Needed

Many shops have two lathes, a large one and a small one. You will find that you can do all the work on the larger one that you could on the smaller one, and still be able to handle the larger work, so get the larger one. A lathe with a 20-inch swing and a 6-foot bed is a very practical size for motor car work and should cost, new, from $650 to $900, according to make. A second-hand one can frequently be picked up in any large city at from $350 to $450.

You will need a shaper, size 18 inches, at a cost of $225 new and about $150 second-hand.

A 24-inch drillpress will cost $125 new and about $90 second-hand.

A small friction, or speed drill, is recommended for light work. A new one will cost about $25.

An emery wheel will cost about $40, and a power hacksaw about the same.

A portable forge will cost about $30, a steam vulcanizer will cost from $40 to $150, according to make, and the really necessary small floor and bench tools will cost about $200 more.

You will also need motive power, and in these days of almost universal commercial use of electricity for power purposes it will be found far the cheaper in nearly every city. Get a 5-horsepower motor, for you will then be able to add to your machinery without having to change motors. A new one should cost about $225, and a very good second-hand one can be bought for $100. Your belting will cost about $150, and the necessary lineshaft and hangers about $25 more. Locate the motor where it will be out of your way and where it will require the least possible amount of belting.

Have plenty of bench room, and so arrange bench and machinery that you will get direct daylight on the work, as machinists work to great disadvantage under artificial light. I recommend three vises, costing from $4 to $10 each, attached to the bench where they will be accessible and may be worked around to best advantage.

Stock of Screws, Etc.

In the selection of your stock of cap screws, nuts, bolts, screws, wire, tubing, brass, steel, etc., you must be governed by the ease with which the stock may be replenished and the nature and completeness of the hardware stocks carried in your town. Do not depend on borrowing from your business competitor, for it breeds bad feeling in almost every case. Stand on your own bottom, and remember that the reputation of having a well-equipped repairshop is worth the interest on the money it takes to carry a reasonably complete assortment of repair material.

The carrying of parts for various makes of cars is not recommended, because unless your assortment is very complete you will often be out of the particular part needed and will be certain to have many of your parts on hand when the season is over, and as models change these become junk. Telegraph for parts, have them shipped by express, install them promptly on their arrival, and you will have done all any reasonable owner could expect.

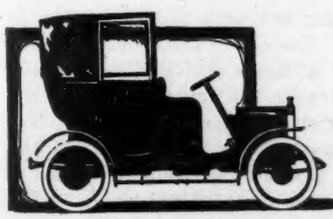
In addition to this, a good mechanic can often contrive temporary repairs which will keep the car running, pending the arrival of the new parts. Herein lies one of the secrets of success—keep the machine in running order. The owner of a motor car which gets over the ground and gives him service is far less likely to find fault with his bills than the one who has his machine tied up frequently, for days at a time, for mysterious repairs and adjustments. Do not make a mystery of repair work, and do not overcharge.

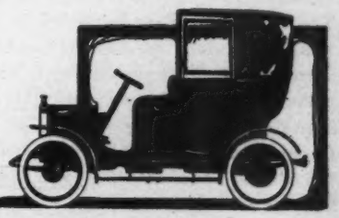
Do Not Include An Agency

One thing well to remember is that in embarking in this business you are to become a competitor of every other garage in your territory, not in any narrow way, but in a straightforward, businesslike one. Whenever you can take a position with relation to the motor car business of your locality which will strike the popular chord, you must do it. If your neighborhood has a number of car agencies which have no garage, consider well before you take the agency for any car. Selling competition grows stronger every year and is a business by itself. The time spent away from your business in running after prospects, making enemies among your competing agents and so stirring up the buyers that if they do not buy your car they will not want to patronize you in the garage business, can be far better spent in building up a permanent garage business. If you are not the agent for any machine, all motor car agents, as well as all owners, will feel that you are likely to be unprejudiced and will feel more free to patronize and recommend you than they would if you were regarded as a rival.

The carrying of a stock of outer casings is optional and is a matter to move slowly in, on account of the great variety of sizes and shapes of rim, which will so often catch you out of just the size or style required, while having several hundred dollars tied up in cases for which you have no demand.

The telegraph and express bring them





promptly, and you can sell the patron inner and outer patches, or repair his outer case, to tide him over the emergency and keep his car going. Carry a few inner tubes of the sizes most in demand, for they are sure to move, but it is not usually necessary to attempt to keep in stock a complete line of tires.

Carry A Few Accessories

Accessories should be carried in moderation, and due care should be used to avoid being loaded up with freak equipment and other junk which only finds occasional sale. A small, well selected stock of merchantable goods is far better than a room full of things there is little demand for. Keep in touch with the new things being brought out, talk over their merits with your customers, and you will be surprised to find how many sales you can make without carrying the articles in question in stock.

A fair sample of the method of procedure is this: Mr. A. has heard of a certain article and has ordered it through you; his neighbor sees it in use, asks where he got it, and comes to you. You say: "I can have one here Friday and have it on the machine, ready for use, by Saturday noon." Then, if you get the order, keep your word and have it in place, according to agreement. If it is a good thing, the ones in use will sell more. I have seen a $300 stock of accessories do a business of from $200 to $600 per month, throughout the driving season, by carefully following this policy. By keeping in close touch with your patrons you may lead them a little and anticipate their needs a great deal, without appearing to force goods on them, and still make the sales. Thus it is that tact plays a large part in the success of garage management.

Never knock any make of car. If you do, the owner of one of them is certain to hear of it and go elsewhere with his business. It is business, and not knocks, which you will be able to charge to some patron's account and collect for at the end of the month.

General Suggestions

It has been the effort of the writer to make only the suggestions herein which will apply in a general way to garages in most small cities. The purchases recommended are only those the business necessitates everywhere, leaving additional machinery, tools, equipment and accessories to be purchased when sound judgment tells the garage management that they are essential in that particular location.

If further information is desired by any reader on the subject under discussion, it is at his disposal, free of charge, through the columns of Motor Age.

Exports and Imports for Month of June

WASHINGTON, D. C., Aug. 5—The latest statistics prepared by the government show that 1,554 motor cars, valued at $1,703,872, together with parts valued at $324,886, were shipped abroad during June. During the corresponding month of last year the number of cars exported was 984, valued at $1,638,321, while the value of the parts exported was $256,484.

Shipments of cars and parts to various foreign countries during the periods under consideration were as follows:

JUNE

Exported to—	1910	1911
United Kingdom	$ 617,371	$ 529,382
France	241,500	37,948
Germany	48,006	19,886
Italy	18,163	18,517
Other Europe	129,525	117,555
Canada	661,625	861,975
Mexico	39,106	40,861
West Indies and Bermuda	7,335	27,724
South America	46,209	99,040
British Oceania	30,638	206,130
Asia and other Oceania.	38,325	52,801
Other countries	17,002	15,939

TWELVE MONTHS ENDING JUNE

Exported to—	1910	1911
United Kingdom	$2,656,214	$2,595,679
France	825,904	532,121
Germany	275,241	251,629
Italy	337,614	215,041
Other Europe	550,414	764,287
Canada	4,383,487	6,774,769
Mexico	540,325	649,666
West Indies and Bermuda	413,888	398,593
South America	342,767	891,133
British Oceania	350,193	1,352,532
Asia and other Oceania.	348,523	786,570
Other countries	165,650	297,209

While the export trade is growing by leaps and bounds, the import trade continues to fall with every succeeding month. The number of cars imported in June last was 117, valued at $256,514, which is an increase of three machines over the imports of June a year ago, the 114 cars imported then being valued at $233,229. Imports of parts declined in value from $75,569 in June, 1910, to $15,748 in June last. For the fiscal year just ended the figures show 888 cars were imported, their value being $1,898,843, while during the fiscal year 1910 the number of imported cars was 1,473, valued at $2,851,446. Imports of parts fell in value from $985,638 in 1910 to $351,910 in 1911.

Cars were received from the following countries during the fiscal year 1911: United Kingdom, 128, valued at $297,382; France, 377, valued at $797,931; Germany, 137, valued at $297,153; Italy, 130, valued at $239,079; other countries, $267,298.

During the fiscal year ended June 30 the exports of motor cars attained the highest number and value in the history of the American motor car trade. The number of cars exported was 11,803, valued at $12,965,049, together with parts valued at $2,544,180. During the fiscal year 1910 6,926 motor cars were shipped abroad, the value being $9,548,700. The value of the parts exported was $1,641,520. These figures indicate the foreign trade in cars and parts has reached a point where it may be regarded as one of the most important branches of the export trade. Three years ago the exports of cars barely passed the 3,000 point in numbers, while the value of the machines and parts was slightly under $6,000,000. Since then the shipments of cars and parts has tripled in value, the grand total of cars and parts for the last fiscal year being $15,509,229.

FISHER WITHDRAWS ROAD OFFER

South Bend, Ind., Aug. 7—Carl G. Fisher, of Indianapolis, has withdrawn his offer of $10,000 in material for the improvement of the road south of this city in St. Joseph county, which he made to the county commissioners 2 years ago. The reason given in his letter to the secretary of the chamber of commerce is to the effect that the road has become so bad south of here that he has been compelled to give up his summer home at St. Joseph, Mich., his intention being to make the trip in his motor car from Indianapolis each week. Mr. Fisher says he will now spend his summers in Detroit. Although it is 76 miles farther from Indianapolis, he can make the trip in about the same time he has been making the run to St. Joseph, on account of the condition of the roads.

SAVANNAH ADOPTS THE MOTOR

Savannah, Ga., Aug. 4—After having been kept a secret for some length of time, the city of Savannah announced a few days ago that it had signed a contract with one of the well known fire concerns to supply the city throughout with motor fire engines, the first to arrive here about the first of October and the last about February. The cost to supply the city will amount to about $77,000. There will be seven steam engines of 700 gallons, three combination chemical engine and hose wagons and one double 50-gallon straight chemical engine with 20-gallon auxiliary tank.

TROUBLE IN GEORGIA

Savannah, Ga., Aug. 4—All Georgia and especially Savannah is interested in the message which Governor Hoke Smith will present to the legislature in a short time, asking for a law to tax every motor car and motor cycle owner $1 per horsepower. Hoke Smith was recently put in the governor's chair and since that time has been appointed United States senator from Georgia. Although he has been given this position he has refused to leave the gubernatorial mansion until December. The Savannah Automobile Club and the Savannah Motor Cycle Club have filed a protest against the proposed law.

The Motor Car Repair Shop

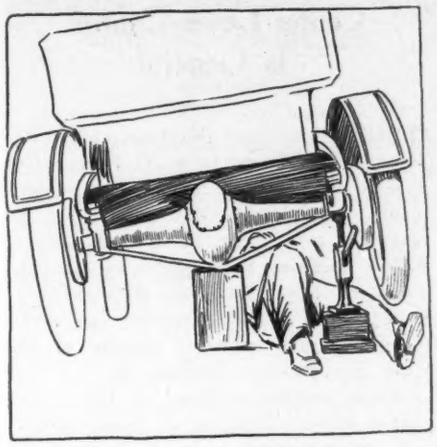


FIG. 1—A GOOD PRECAUTION

IN almost every motor car repair shop one or more apprentices or junior repairmen are to be found, and as a bit of a warning to these and to the amateur who do their own minor repairing and adjusting the illustration, Fig. 1, is given. It represents a precautionary measure employed in some repair shops to prevent accidents to its workmen, and damage to the cars worked upon. The left rear wheel of the vehicle is jacked up so the workman, who is operating on the universal joint just in front of the rear axle, can turn the propellor shaft; and it is raised to a height that permits him to conveniently lay under the car. The workman's one knee is raised so it is immediately under the truss rod of the rear-axle; this is a position often taken by anyone when lying upon the floor under the car, and usually both knees are raised in the same way, for generally the floor is cold or dirty, or both, and one does not care to have more of his body in contact with it than is necessary. Were it not for the block placed under the bevel gear case of the rear-axle, as shown, the safety of workmen would depend upon the jack alone. A jack never is to be relied upon, where there is possibility of an injury to the workman or damage to the car. If the block were not there and the jack were to slip or the car roll off it, the truss rod might strike the raised knee or leg of the operator and break it, or the wheel might fall on the other leg and severely crush it, while if the car were to roll forward it is possible that the lowest portion of the axle gearcase might be dropped onto the trunk of the workman's body.

Ignition Switch Trouble

Inasmuch as there are thousands of ignition switches of the push-button type now in use on motor cars, it might be pertinent to describe a certain trouble experienced with a switch of this kind, so that those driving or dealing in cars with switches of this character, can avoid similar trouble. The switch in this case is illustrated in Fig. 2, the cover being indicated by dotted lines. The push-button B pierces the cover of the switch, but on the inside it rests against the end of the blade spring S. The object of this button is to break the primary circuit of the ignition system and produce a spark in the cylinder that happens to be on its firing center; thus, if there is a charge of gas in the cylinder it can be ignited and the engine started on the spark produced by pressing the button. By pressing this button, two contact points P, one secured to the blade spring S and the other to an arm arranged directly above it, are separated. This breaks the primary circuit.

It is not intended that these points be held apart; and if they are, the engine will not run; the button must be pressed in and released as quickly as possible if any results are to be obtained by the use of it. The fact of the matter is, most of these buttons are practically useless

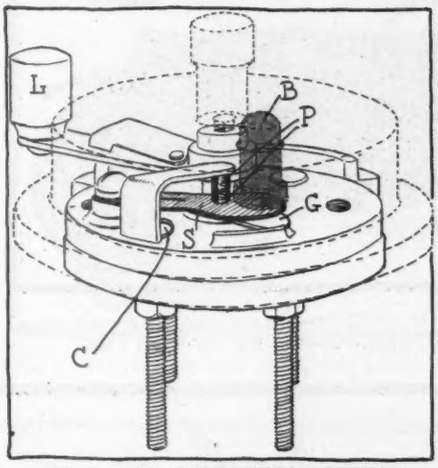


FIG. 2—THE PUSH-BUTTON SWITCH

from a mechanical standpoint. It sometimes occurs that the button, which is made of fiber, will swell in damp weather, so that in case it is pushed in while in this swollen condition it will stick and hold the points apart. Then there are cases where for some reason or other the cover has been removed and the blade spring bent so that the points did not make contact. In any event, if these points P do not make contact, the engine will not run, for both the primary circuits of the magneto and battery are broken.

To return to the particular case of trouble previously mentioned, the battery wires of the ignition system were connected up to a battery to which the lighting wires also were attached; and the connections were made in such a way that when the lamps would light the motor would not run, and when the motor would run, the lamps could not be lit. In an effort to find the cause for these peculiar circumstances, the switch cover was removed and the switch inspected. It was found that when the switch lever L was swung over to the battery side, the inner point of it G did not make contact with the top of the brass bolt C, but came to rest directly over it without touching. Although the brass head C was slightly depressed, it looked very much like a point of contact, and believing this to be its intent, the workman bent the end G of the switch lever L downward so that it made contact. This was a grievous error, for in so doing the switch was short-circuited and ruined, the terminals having become so hot that the hard rubber base supporting them was softened and very much distorted. An internal connection between the bolt head C and the pivot of the switch lever, which is invisibly imbedded in the hard rubber base, also was destroyed. The bolt head C was not a contact point but simply a means of securing the arm which held the upper contact point of the push-button circuit-breaker.

Filing Flat Washers

The motor car repairman, be he amateur or professional, often is required to file or dress down the sides of a washer to make it a little thinner. Unless some means of holding the washer is provided this is a difficult matter, for it cannot be conveniently or substantially secured in a vise. There is a way, however, in which it can be held very securely. This is illustrated in Fig. 3. A block of wood is secured between the jaws of the vise, the washer is laid upon the block, then two or three nails are driven into the block so that they bear against the inside edges of the washer, and so that they are arranged at equal intervals apart on the inside circumference of the washer. The heads of the nails next are cut off, and filed down flush with the top side of the washer. The washer then is held securely and can be filed down to any thickness.

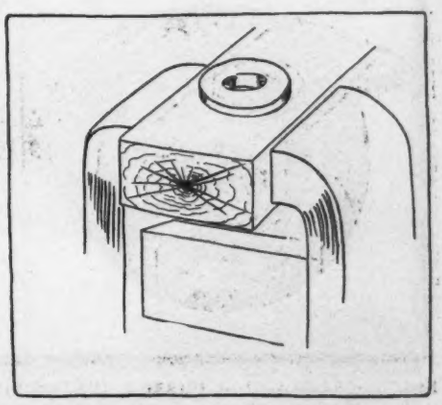


FIG. 3—FOR FILING WASHERS

Four Overland 1912 Chassis Types

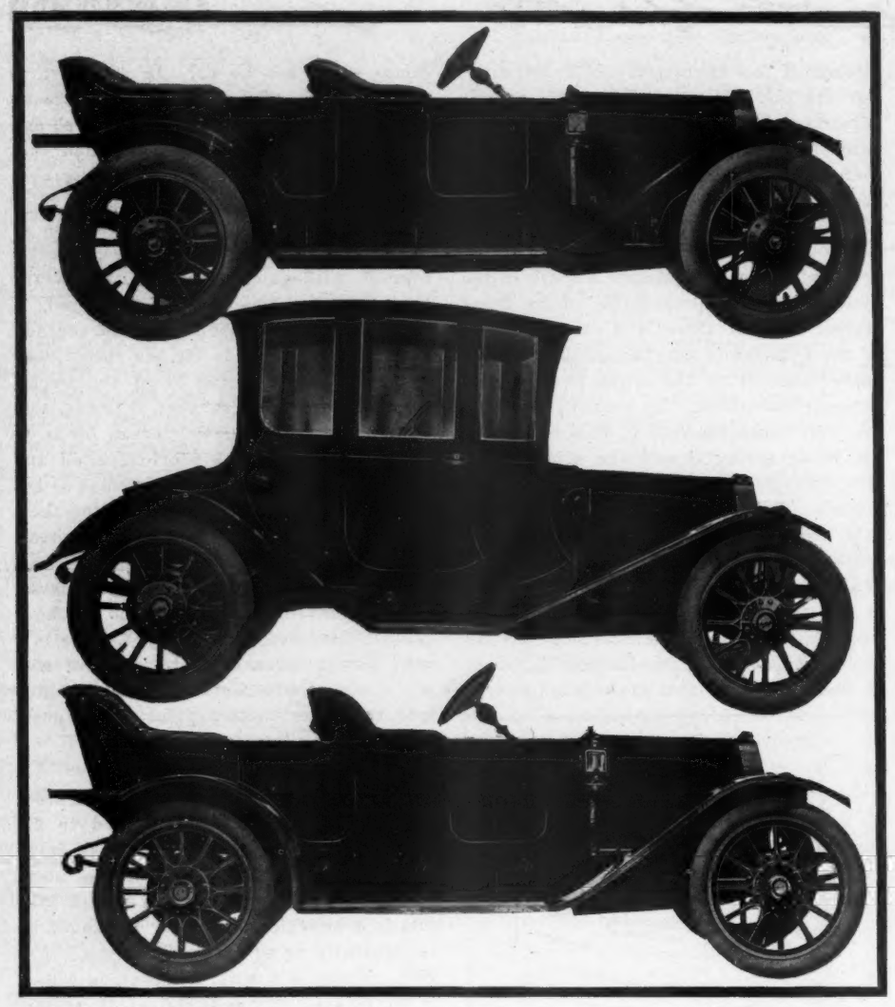


FIG. 1—OVERLAND 1912 BODY TYPES—ON TOP, 61-T, TOURING CAR; CENTER, 61-C, FOUR-PASSENGER COUPE; AND 60-T, FIVE-PASSENGER TOURING CAR

Fore-Doors on All Models—Center Lever Control Is General

THERE are four Overland chassis for the 1912 buyer to select from, which chassis are expected to meet the requirements of all buyers who are looking for machines ranging in price from $850 to $1,500. Between these figures the company offers not fewer than nine different body types which includes fore-door on everything, whether roadster, torpedo or the more conventional touring car. A line of coupe models is offered on two of the chassis types. This list of chassis models is a great reduction on the line of the present season, and indicates the concentration of the engineering and factory forces on a line of machines intended for the buyer who has up to a certain amount of money to expend.

The four Overland chassis are all alike in the majority of respects. It is a case of one an Overland, all Overlands. Here are the four chassis with their official names:

Model	Body	Motor	Wheelbase	Tires
58-R	Roadster	3.75 by 4.5	96	32 by 3.5
59-R	Roadster	4 by 4.5	106	32 by 3.5
59-T	Touring	4 by 4.5	106	32 by 3.5
59-C	Coupe	4 by 4.5	106	32 by 3.5
60-T	Touring	4½ by 4.5	114	32 by 4
61-T	Touring	4⅜ by 4.5	118	34 by 4
61-F	Torpedo	4⅜ by 4.5	118	34 by 4
61-R	Roadster	4⅜ by 4.5	118	34 by 4
61-C	Coupe	4⅜ by 4.5	118	34 by 4

In this model nomenclature R stands for roadster, T for five-passenger touring car, F for four-passenger torpedo and C for coupe bodies. The baby of the line, 58-R, is made only as a two-passenger road-

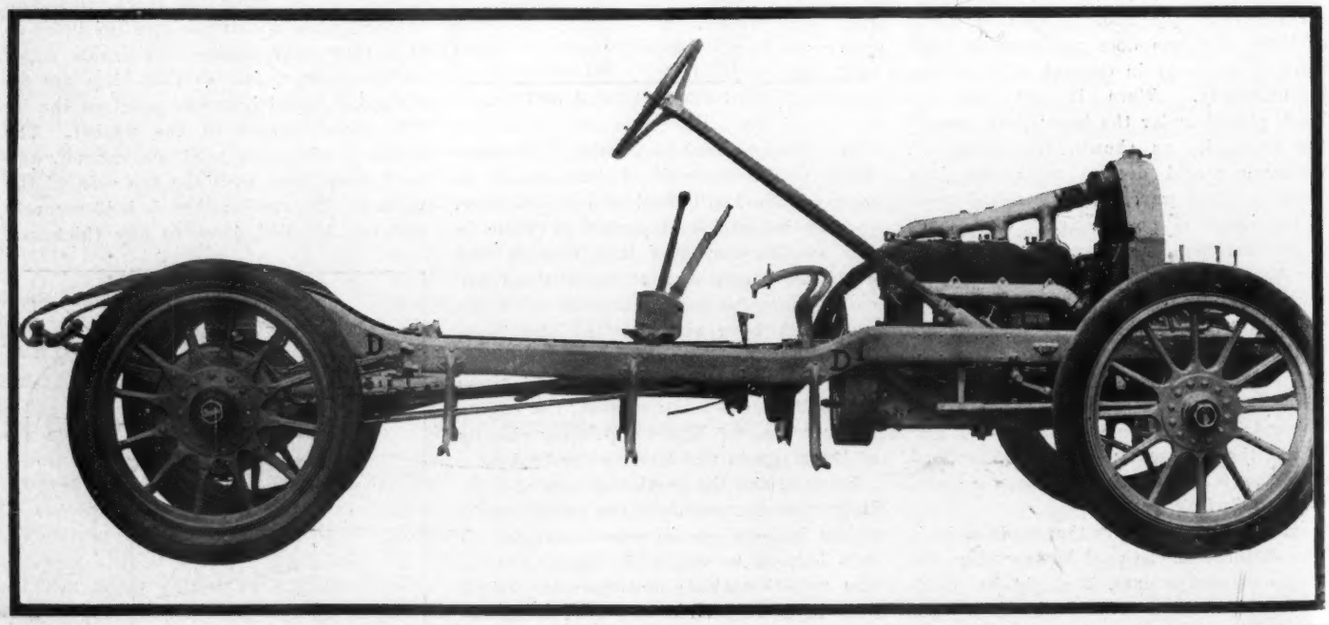


FIG. 2—OVERLAND 61 CHASSIS DIFFERS FROM THE OTHER THREE MODELS IN ITS DOUBLE-DROP FRAME, FLOATING AXLE AND NEW GEAR SHIFT

Are Offered for the Coming Season

All Four Chassis Built Along Same Lines—Minor Changes

ster; the 59 type carries three body styles, roadster, touring car and coupe; the 60-T is built only as a five-passenger touring car; and the 61 is turned out with roadster, touring car, torpedo and coupe bodies.

Not one of these models is a new type with the Wyllis-Overland company, but all are evolutions of the present 1911 models. For the benefit of those familiar with the 1911 Overland line it will be explicit to state that model 58-R is similar to the present model 46 with the frame 6 inches longer and a box in rear of the gasoline tank. The 59 is similar to the present 49; the 60 is similar to the present 51; and the 61 is similar to the present 52. All models carry the 1912 improvements.

Figs. 2 and 4 show the typical Overland chassis. It has many characteristics: The motor is a four-cylinder one, with cylinders cast separately and valves located on one side. Casting separately allows of using a five-bearing crankshaft, a type of shaft that is being largely used abroad and is being used more and more in America by builders who are casting their cylinders in pairs. The clutch C is a conventional cone type, asbestos covered and with limited-action plungers beneath the facing. The gearset G is a selective design on all but model 58, which is a two-speed planetary. This gearset, whether selective or planetary, is a unit with the rear axle and has the torsion tube T bolted to its

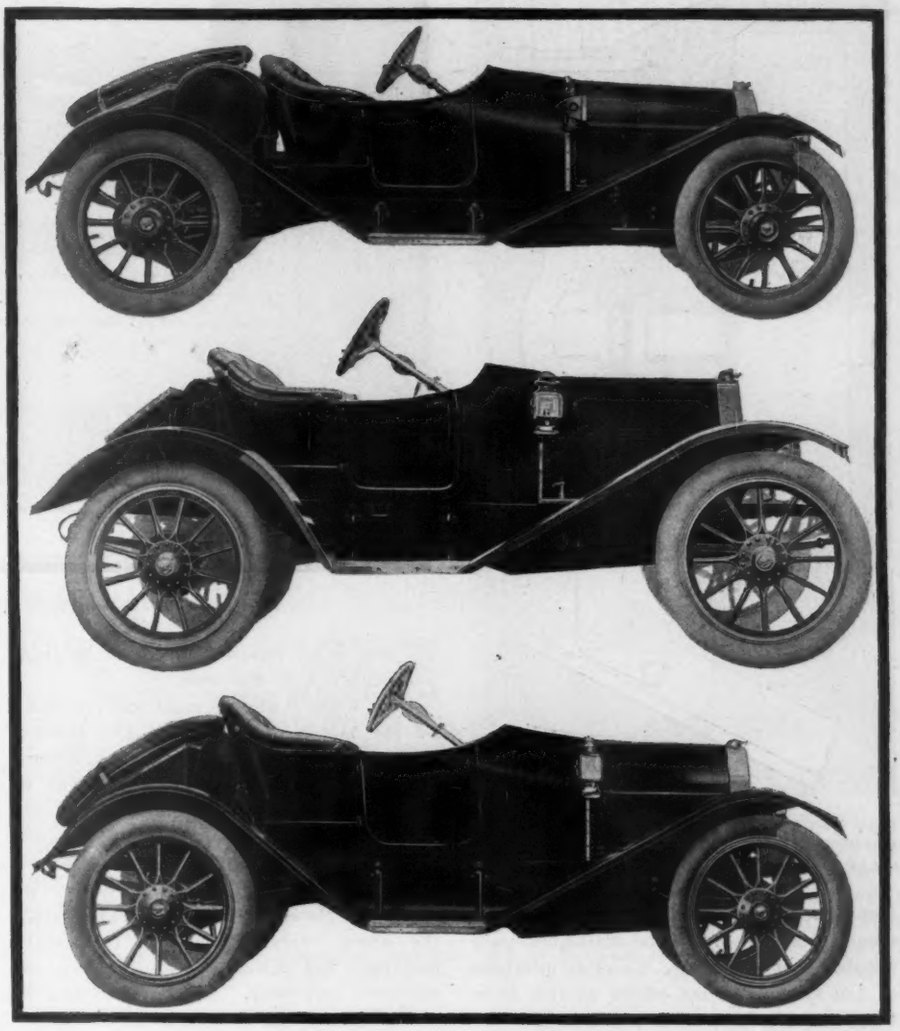


FIG. 3—1912 OVERLAND BODY TYPES—ON TOP, 61-R, ROADSTER; MIDDLE, 58-R, ROADSTER; AND BOTTOM, 59-R, ROADSTER

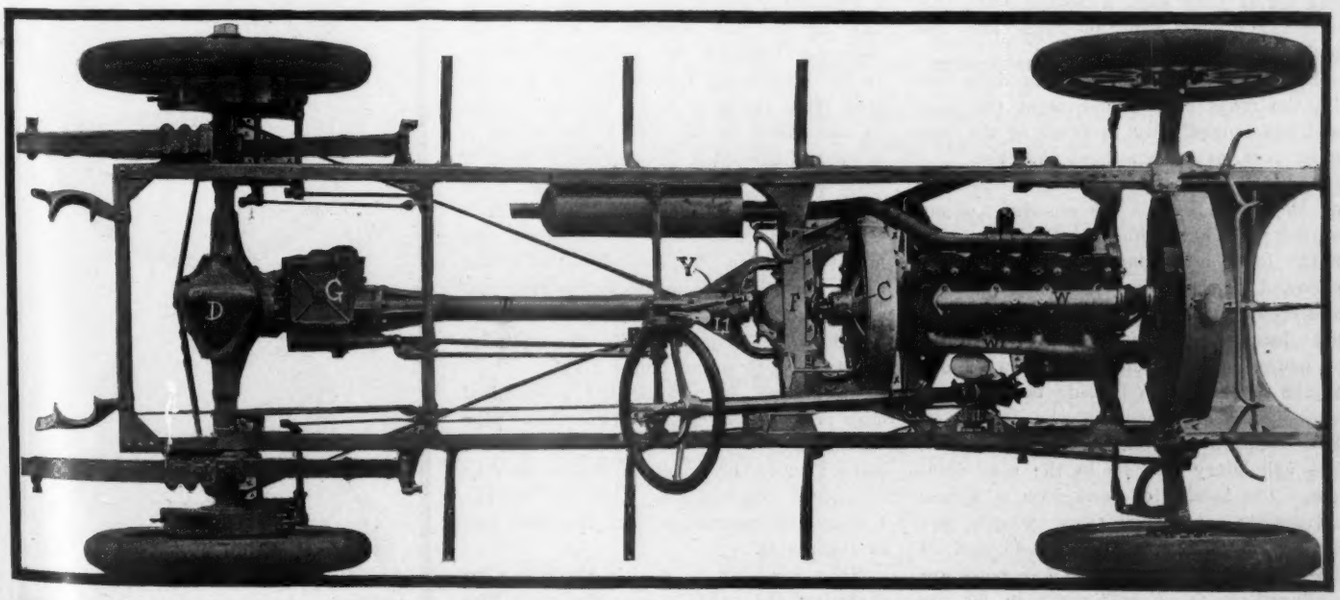


FIG. 4—THE TYPICAL OVERLAND CHASSIS—THE PARTS ARE: W AND W1, THERMO-SYPHON WATER PIPES; C, CONE CLUTCH; F, MALLEABLE FRAME CROSS MEMBER; T, TORSION TUBE; Y, TORSION TUBE YOKE; G, GEARBOX; D, DIFFERENTIAL UNIT WITH GEARSET

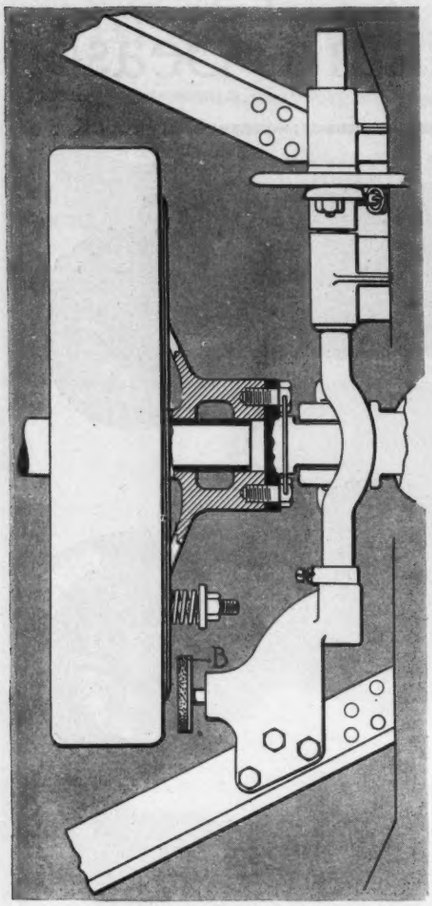


FIG. 5—CLUTCH BRAKE. B TO PREVENT CLUTCH SPINNING WHEN CHANGING GEARS

front face, this tube being supported in front by a yoke Y on the malleable cross member F of the frame. The side members of the frame are not offset at the dash. On 58 and 59 the side members are straight from end to end; on 60 they have a single drop in advance of the rear axle; and on 61 they have a double drop, this allowing of low tonneau doors and low body carriage.

In Fig. 4, D shows the rear drop and D1 the front drop, which is at the dash and not immediately in front of the tonneau door, as is sometimes the case.

Figs. 1 and 3 show the varied line of bodies. All have the steering column on the right hand side, but the emergency brake lever and change speed lever are mounted in the center of the floor board and operated by the left hand. This is a neat location of them in a fore-door line of bodies and is used this season on one of the models. The leading body change is the use throughout of the fore door. This changes the entire car appearance. The upholstery is deep in the seat cushions. The hooded or cowl dash is almost universally used. Heavier wheels are fitted throughout. On models 58 and 59 1½-inch spokes with twelve hub bolts are employed in front and rear; in 60 the spokes are 1¾-inch front and rear with twelve bolts; and on 61 the spokes are 1¾-inch with twelve hub bolts in front and eighteen in the rear.

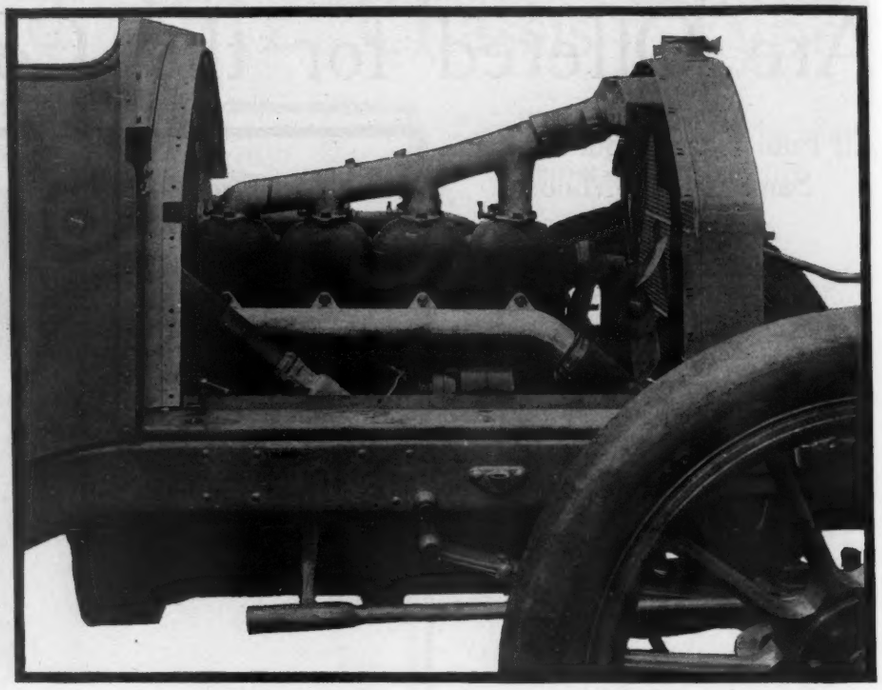


FIG. 6—THERMO-SYPHON WATER PIPES ON OVERLAND

Figs. 6 and 9 are the right and left sides of the motor respectively. The thermo-syphon water piping has been increased in capacity from 25 to 75 per cent in the different models. These pipes are aluminum castings. As in all thermo-syphon motors the radiator has to be well elevated above the cylinder heads. The aluminum crankcase is a two-part casting, the upper carrying the five crankshaft bearings, the lower constituting an oil reservoir and basin. In models 58 and 59 a mechanical oiler is used and consequently the lower part of the crankcase serves merely as a basin; whereas in 60 and 61 a circulating oiling ssytem is used and the base of the case contains a sump or oil reservoir beneath the crankcase proper. In the circulating system the oil is delivered from the gear pump through a pipe to the middle of the crankcase, where it is poured against a divider of inverted V form cast on the inside of the case. The oil falling onto the apex of this divider is sent half to the front of the case and half to the rear. This supplies two splash levels and the oil splashed by the four connecting rods lubricates the crankshaft and camshaft bearings and also the cylinder walls, wrist pins and piston rings.

On models 58 and 59 the mechanical oiler is carried over the intake water pipe on the right side of the motor and has six leads, four to the cylinders, one to the rear crankcase compartment and one to the timing gear compartment at the front end of the motor.

Noise has been reduced in the motor by enclosing the valve stems, Fig. 10. The cylindrical cover K is made up of two semi-cylindrical pieces K held in place by

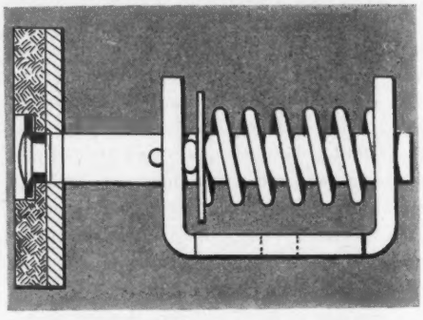


FIG. 7—DETAILS OF CLUTCH BRAKE

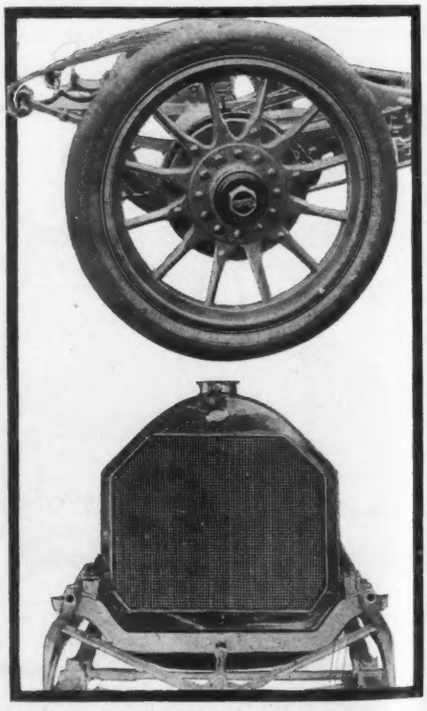


FIG. 8—HEAVIER WHEELS AND NEW NEW TUBULAR RADIATOR

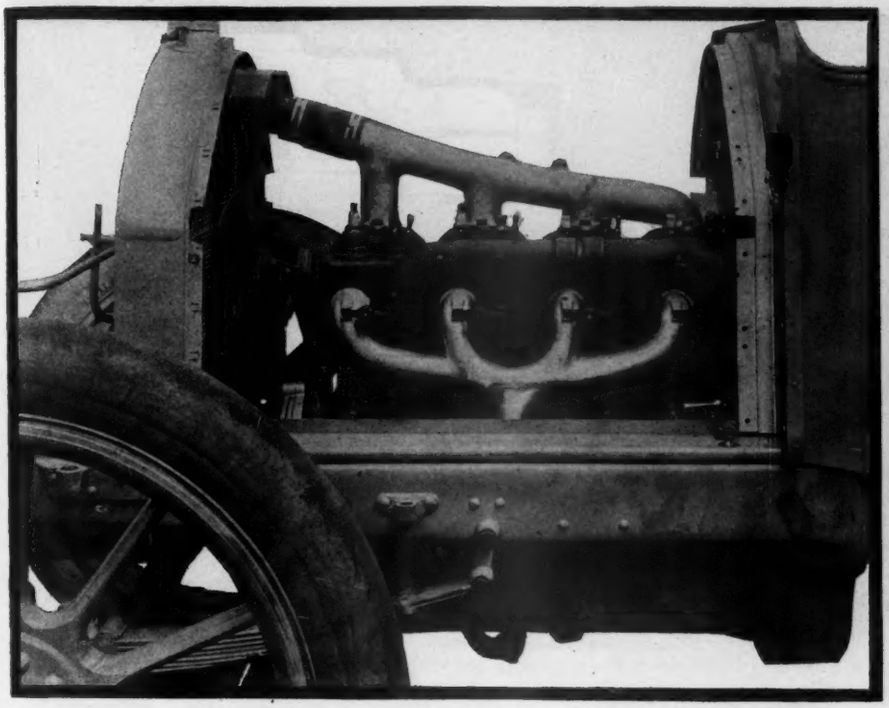


FIG. 9—VALVE SIDE OF 1912 OVERLAND MOTOR

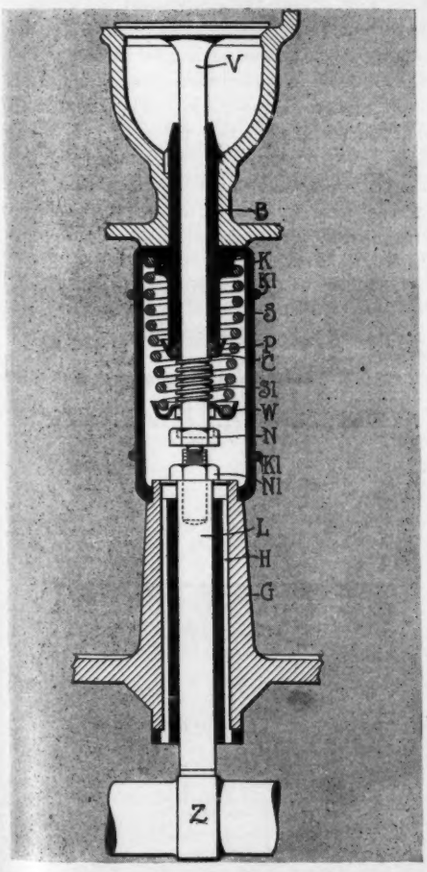


FIG. 10—OVERLAND VALVE IMPROVEMENTS. THE PACKING P IS TO PREVENT OIL LEAKING PAST THE VALVE STEM. THE VALVE SPRING COVER K IS MADE IN HALVES AND HELD IN PLACE BY WIRE CLAMPS K 1. THE VALVE LIFTER GUIDE G HAS TWO HOLES H TO RETURN THE OIL TO THE CRANKCASE AND SO PREVENT ITS LEAKING OUT PAST THE TOP OF THE GUIDE. NUT N AND LOCKNUT N 1 ARE USED TO ADJUST THE LIFTER GUIDES

two springs K1 which clamp around them. The clamping springs are readily removable. This illustration shows how the leakage of oil around the valve stem is prevented. The bottom of the valve stem bushing B is recessed and a packing P inserted, a steel saucer C holds the packing in place and this saucer is in turn retained by a small spring S1 which is inside of the valve spring S and rests on the washer W. This arrangement gives a good stuffing box effect.

A further Overland improvement shown in Fig. 10 is the valve lifter rod guide G which rests in the top of the crankcase. This guide has two holes H from top to bottom of it for returning the oil which is pumped up between the lifter rod L and the bushing. The lifter rod passes through a washer at the top of the guide and immediately beneath this washer is an open annular space in which the oil enters before dropping through the holes H. Noise is further reduced by a fiber packing between the bottom of the valve stem V and the top of the lifter at the point N where there is the customary nut for adjusting the length of the lifter and also the locknut N1 to retain this adjustment.

Figs. 5, 7 and 11 illustrate features of the Overland cone clutch. Fig. 5 shows the clutch brake B to prevent spinning of the cone when shifting gears in order to get an easier shift without grating of the teeth. Its detail is shown in Fig. 7. The fiber facing is revoluble on the stem; it used to be rigid. The result is that the fiber wears regularly all over the surface instead of cutting in at one side. This brake is normally pressed forward by a spring which surrounds the brake stem. Another brake feature is shown in Fig. 11

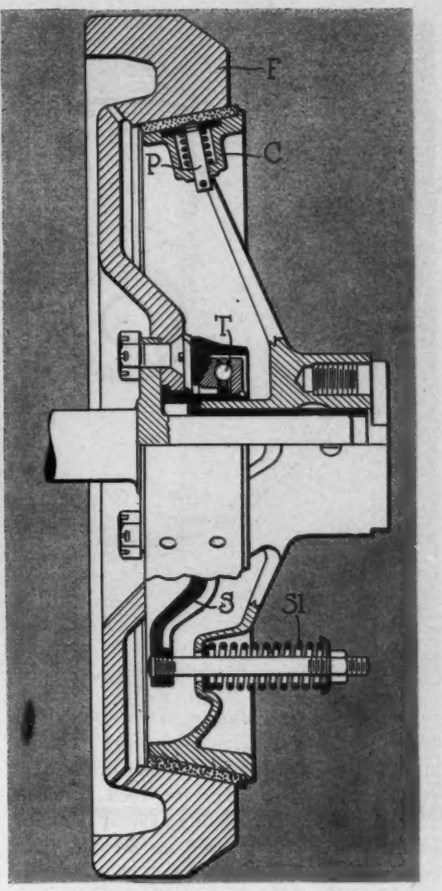


FIG. 11—THE OVERLAND CLUTCH

and is the limited plunger action. Beneath the asbestos clutch facing are six plungers P, each pressed outward by a spiral spring. In the stem of the plunger is a pin outside of the bracket C. This pin is $\frac{3}{32}$ inch from the bracket and so this distance is the limit of the plunger movement. The result is that the clutch engagement is safeguarded against biting.

Alignment of the cone C of the clutch in the recessed flywheel F is assisted by floating the cone part upon a thrust bearing T by means of a spider S. The spider carries three studs, each of which carries one of the clutch engagement springs S1. Were the spider S rigidly mounted at its hub it would necessitate a uniform tension of all three engaging springs S1, only one of which can be seen in the illustration. Floating the spider, however, on a cup-and-cone center will allow it to act as an equalizer among the three springs and so insure regular entering of the cone C into the flywheel irrespective of the tension of the springs. This construction has been used for several seasons. The total pressure of the three springs is 150 pounds; added to this is the 80 pounds pressure in each spring of the radial plungers P, Fig. 11. The net result of this is a clutch easy to operate and one which can be dropped in without biting.

The dual ignition system is used in all four chassis: On 58 and 59 the Splitdorf outfit is employed; on 60 it is the Remy, and on 61 use is made of the Bosch. The

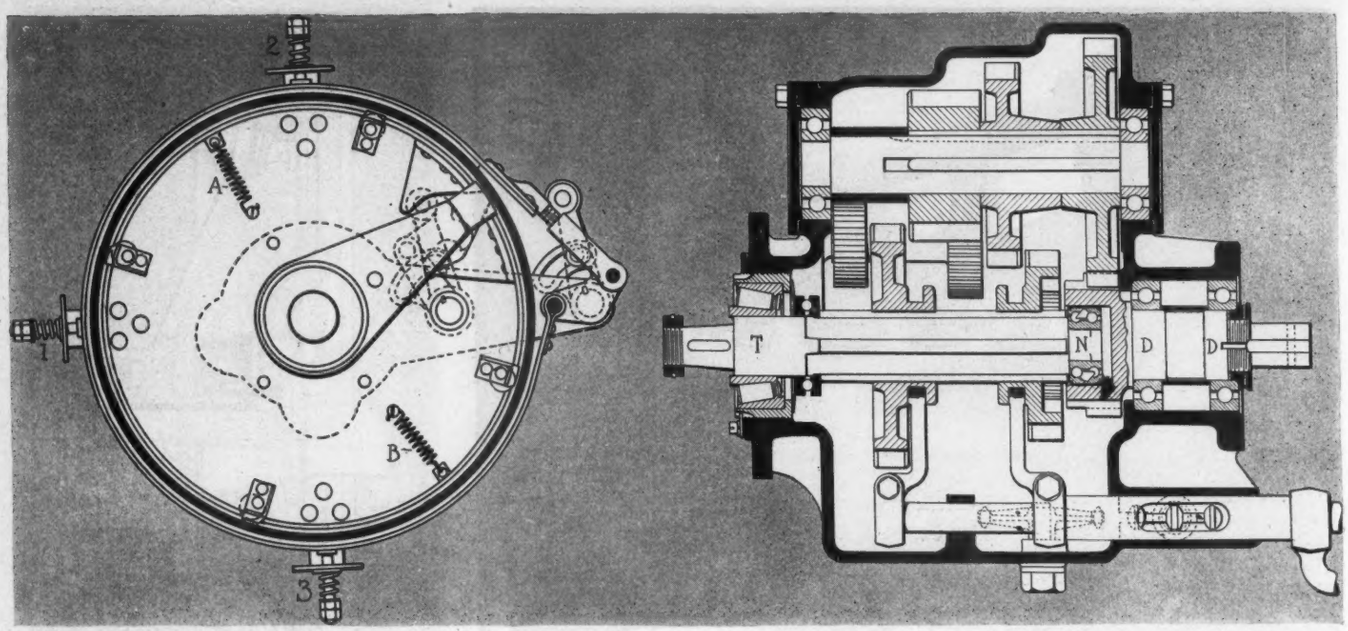


FIG. 12—ANTI-BRAKE RATTLERS, 1, 2 AND 3

FIG. 13—OVERLAND 61 SELECTIVE GEARSET

carbureter is the new Schebler model L. The carbureter is carried very low, the top of it being on a level with the lower half of the crankcase. Gravity feed is used. The thermo-syphon cooling system includes a belt-driven fan carried on an eccentric bushing to give adjustment of the belt. The bushing is held in place by splitting the housing and using a pinching bolt. Fig. 8 shows the new design of flat-tube radiator made without any false front. It is made up of vertical tubes with horizontal cooling flanges, giving a square cellular front appearance. The radiator support at each side is a trunnion, Fig. 19, in a bracket B. The trunnion cover C has been removed. The front end of the bracket at L serves to attach the lamp bracket and at F is the support for the fender iron.

The transmission system of the Overland chassis is graphically illustrated in Figs. 12 to 23. In Fig. 17 is the malleable iron cross member placed midway of the frame and which takes the place of forty-seven different pieces used some years ago. T shows the eye holes for supporting the forward end of the torsion yoke; and Z the support of the clutch and brake rocker shaft carrying the pedals. The torsion tube carries a bracket T1 on its forward end to which the diagonal brace rods illustrated in Fig. 4 attach at points T2. At the rear end it enters a bracket T2, heavily webbed and which ends in a flange for bolting to the front of the gearbox. The propeller shaft P is carried in this torsion tube on a Hyatt bearing at the front and at the rear it is not supported by a bearing but is divided and attaches to the shaft P1 by a sleeve S.

The gearset, Fig. 13, is a three-speed selective set with two sliding gears on the mainshaft T. Where this shaft telescopes with the end of the stub shaft a two-race New-Departure bearing N is used. Frequently a plain bearing is used at this point. The ball bearing makes the lubrication problem here an easy one. The short stub shaft is carried on two races of ball bearings D. An improvement is the employment of a Timken bearing T at the rear of the case or where it bolts onto the differential. This bearing allows of ad-

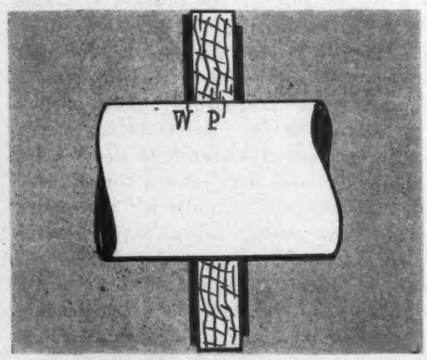


FIG. 14—REAR AXLE PACKING SYSTEM

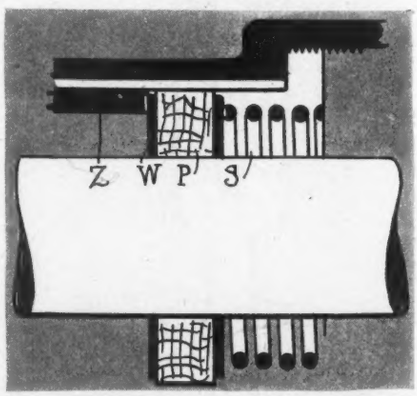


FIG. 15—REAR AXLE PACKING SCHEME

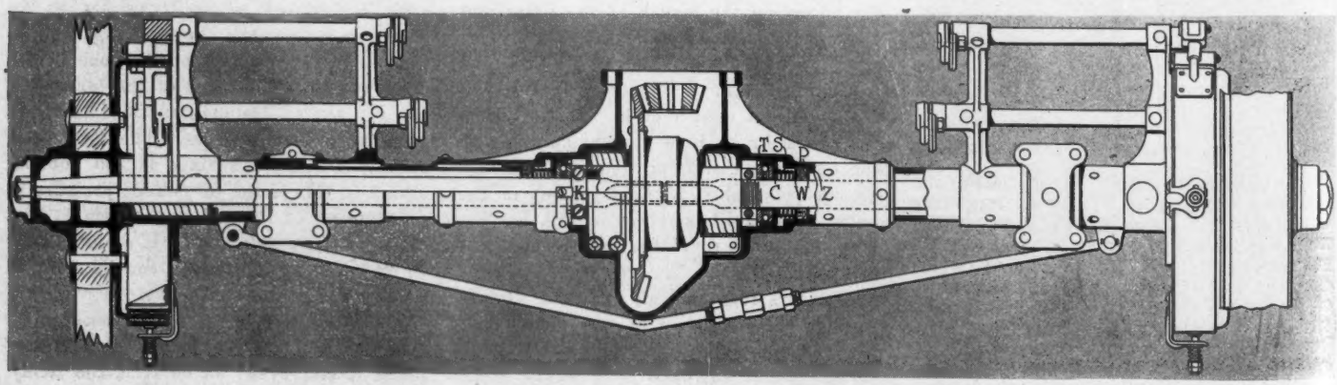


FIG. 16—REAR AXLE ON OVERLAND 60 SHOWING STUFFING BOX AND DIFFERENTIAL ADJUSTMENT

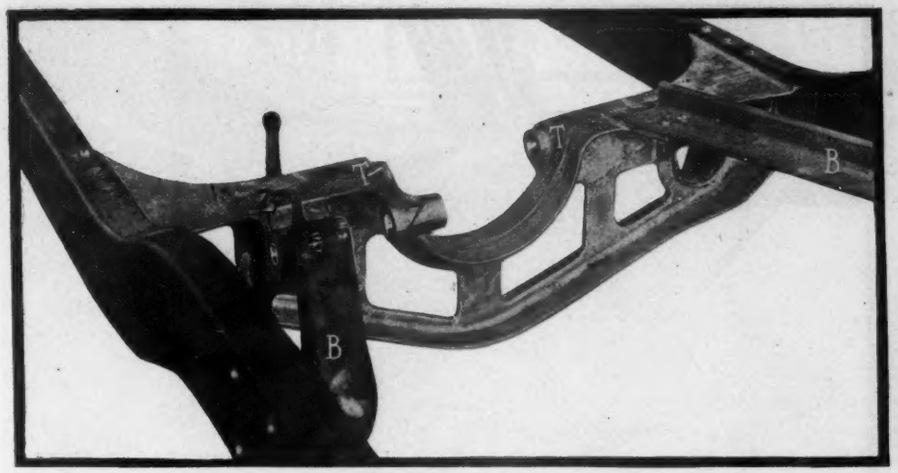


FIG. 17—MALLEABLE CROSS MEMBER OF FRAME

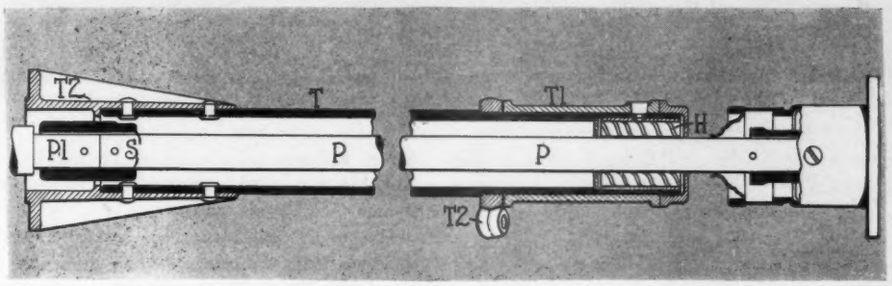


FIG. 18—TORSION TUBE DETAILS OF OVERLAND

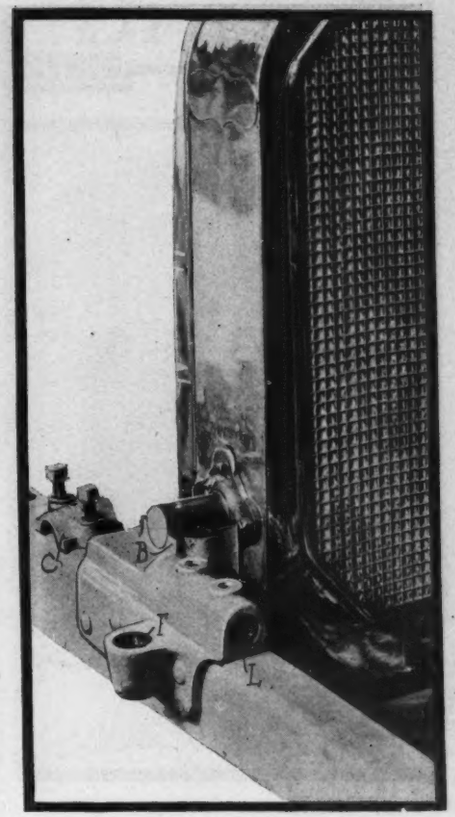


FIG. 19—TRUNNION RADIATOR SUPPORT

justing the bevel pinion carried on the end of this shaft with the differential bevel. A ball thrust bearing is placed between a shoulder on the mainshaft and the Timken bearing. On models 60 and 61 chrome Vanadium steel gears are used. F. & S. annual ball bearings are fitted. This illustration is of the gearset used in models 60 and 61 and shows how direct drive is obtained by an internal gear. This is new; it used to be by dental face teeth on the opposing faces of the locking gears. On model 59 the dental face teeth are still used. The internal gear method makes shifting easier and quieter.

One noteworthy Overland rear axle improvement is the methods adopted to prevent oil leaking out and getting onto the brake drums. Two methods are used, one on models 58, 59 and 60, and a different one on model 61. Fig. 16 illustrates the model 60 axle. The packing P rests between two steel washers W, the outer washer bearing against the end of the tube Z inside the axle, and the inner washer being pressed outward by a coiled spring S. The details are shown in Figs. 14 and 15. The method used on model 61 is not illustrated. It is more elaborate. Against the end of the sleeve Z is a stuffing box cup which contains the packing. A stuffing box nut threads into this cup and is locked by a finger. The axle drive shaft is ground where it passes through the stuffing box cup. This construction gives a positive anti-leak device.

In the 60 axle the differential can be moved to the right or left into adjustment with the pinion by means of a split collar K which is grooved internally and fits into a series of corrugations around the axle drive shaft. Within this collar is located the thrust bearing T. By taking the collar off it can be moved one corrugation or thread to the right or left, according to the amount of adjustment needed. On model 61 with its floating axle a different method of adjustment is used. It consists of a horizontal bar with locking device on it. This axle uses Timken roller bearing throughout. The differential hous-

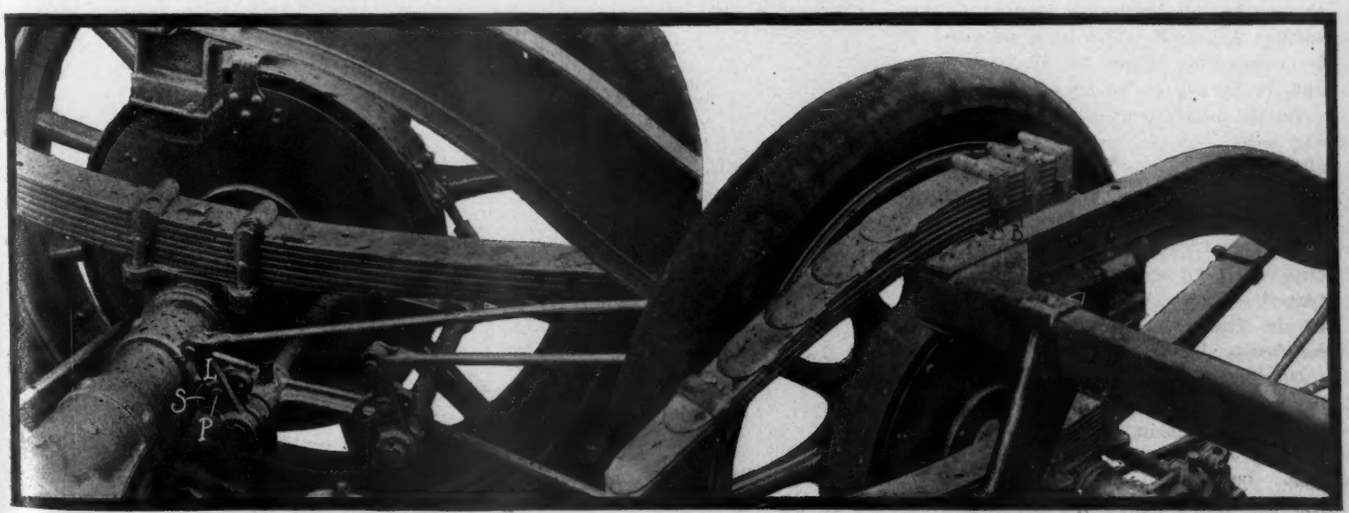


FIG. 20—BRAKE ADJUSTMENT AND REAR SPRING ATTACHMENT ON OVERLAND

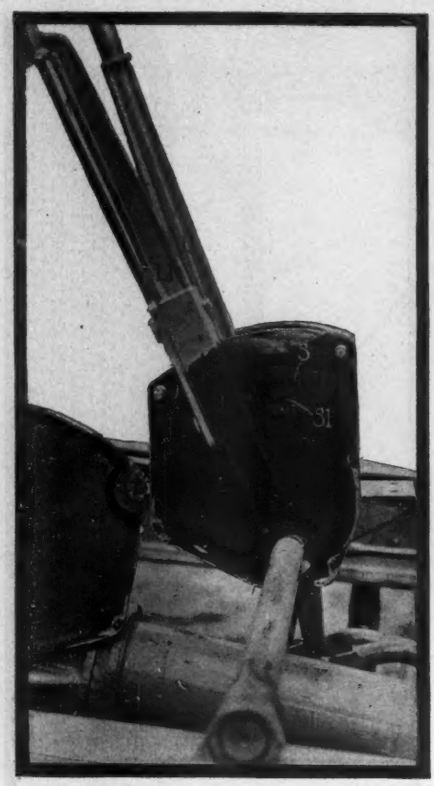


FIG. 21—GEARSHIFT SYSTEM ON MODEL 61

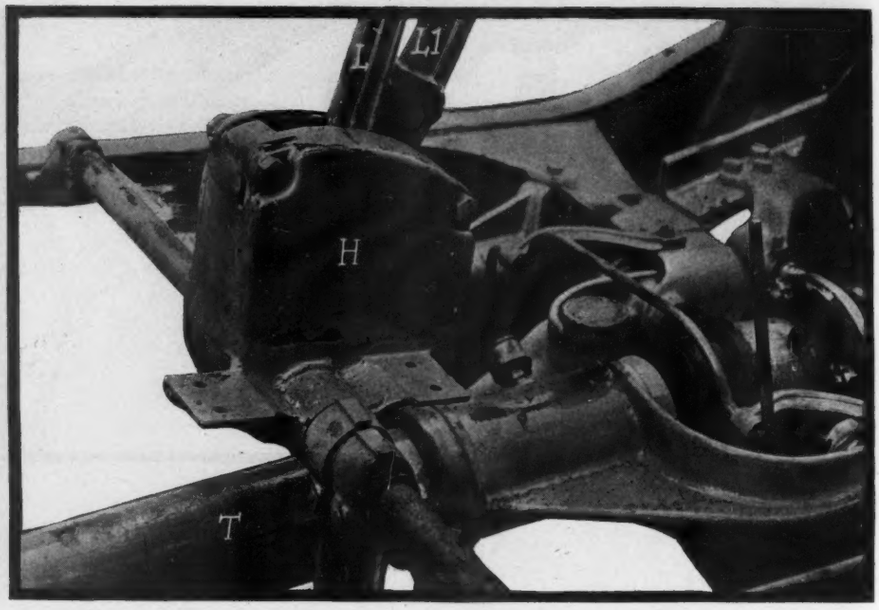


FIG. 22—HOUSING H FOR VERTICAL SLOT GEARSHIFT

ing is a malleable casting. The axle sleeves are seamless steel tubes keyed and riveted to the differential and left $\frac{9}{16}$ inch thick after finishing.

On all models the brakes are of the same design as used this year, that is, internal and external on the rear wheel drums. Fig. 20 shows the method of adjustment. On the brake rocker shaft is a sector S, with a slot which has a toothed or serrated margin. The brake connection arm L takes a pin P with nut on the opposite end. By loosening the nut this arm can be set in any position in the slot in the sector and held there. This gives every possibility of range. By adding the springs marked 1, 2 and 3 in Fig. 12 all rattling of the external band has been eliminated. These are new. Quick disengagement of the expanding brakes is insured by the springs A and B. The drum sizes are 10 by 2 inches on 58 and 59; 12 by 2 on 60; and 14 by 2½ on model 61.

On all models semi-elliptic front springs are used. On 58 the rear springs are elliptics, but on the 59, 60 and 61 a three-quarter elliptic is used. Fig. 20 shows the bracket B for attaching these springs to the frame. The spring is held by three clips and the lower part of the bracket is turned over or clinched on the lower lip of the frame. The heavy corner gusset reinforces the frame at this point.

On Overland model 61 a new gearshifting lever control is used. The lever works in a single slot in a housing H, Fig. 22, the top of which is flush with the car floor. The details are better shown in Fig. 23, which shows the lever L fitted with a ball end, which ball is not on the lever proper but on a latch seen in the right half of this illustration. This latch works in the slots S and S1, which are placed one above the other. There is a crossway between them. The lever L picks up two short vertical levers mounted on sleeves on the cross shaft and on the inner ends of these sleeves are drop arms A and A1 for picking up the shifter rods of the gearset. The speeds are obtained as follows: Pushing the lever L forward without pressure on the ball end gives reverse, pulling it back without pressure on the ball gives low speed. To get second move the lever forward with pressure on the ball and for direct move it back with the pressure. Without the pressure the latch moves along the upper slot S and with the pressure it moves along the lower one S1. The merit of this shift is that it makes a neat job and having the lever without any side shift makes it suitable for inside operation in fore-door bodies.

In briefly recapitulating the Overland line for 1911 it is seen that little change has been made in the motor sizes. On models 58 and 59 the bore and stroke have not been altered; and on models 60 and 61 the bore has been increased ⅛ inch in each. The four motors have the stroke from ⅜ to ¾ inch longer than the bore. A worm and gear steering mechanism is used on all models, with ball thrust above and below the worm. Accelerator and muffler cutouts are furnished. On the big car model 61 equalizers are used for the regular and emergency brakes, but on the service set only in the three smaller models. There has been an improvement in the materials used in gears and shafts of the gearset.

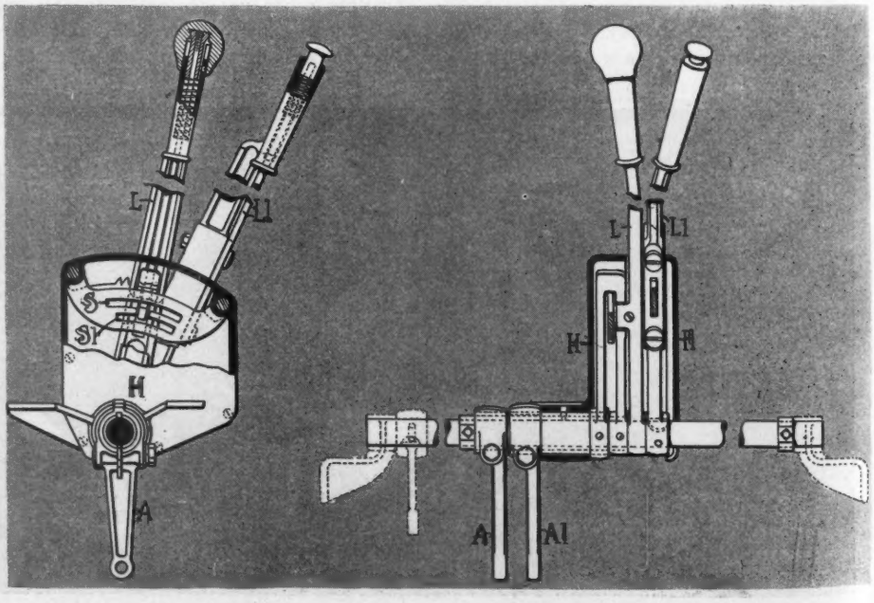


FIG. 23—THE SINGLE-SLOT SELECTIVE GEARSHIFT SYSTEM

Development Briefs

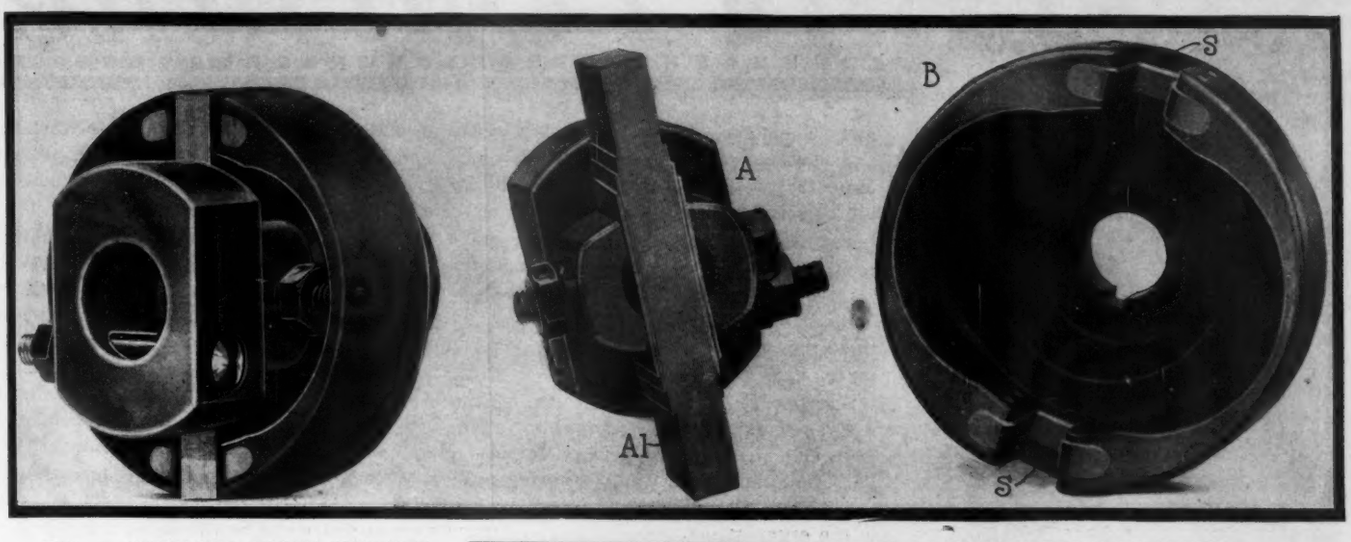


FIG. 1—IMPROVED BOSCH MAGNETO SHAFT COUPLING IN DETAIL

Warner Autometer

THE Warner Instrument Co., Beloit, Wis., has improved its dial type of Autometer by adding an extra trip reset device. The regular trip reset brings the trip leading back to 0 with a single turn; and the extra reset operates the miles and tenth only so that by using the two in conjunction any desired mileage can be turned up on the trip scale in a few seconds. For example, if the scale shows 48.6 miles and it is desired to set it back to 35.8 the regular reset is used to turn back the mileage until the trip dial reads 333.3. Then use the extra reset to turn up the miles and tenths to 5.8, when the full reading will be 335.8. The first figure will naturally be ignored. This new device is a great convenience in traveling by route book as it frequently happens that the motorist desires to spend some time doing the parks or boulevards of some city en route before continuing the trip. Heretofore it has been necessary in such cases to subtract this extra mileage at every subsequent turn or direction of the route book.

Another improvement is the outside wind and set to the Chelsea clocks used in the Warner clock combination Autometers, which is also shown in the illustration. The speed-indicating mechanism of the Warner Auto-meter is unchanged from the original form in which it was put on the market 8 years ago.

Bosch Magneto Coupling.

The Bosch Magneto Co. of New York has brought out a new coupling to go between the magneto and the drive shaft of the motor, the leading feature of this new coupling being a resilience afforded because of the use of a spring device. The coupling consists of two parts, A and B; A is a crosspiece of special construction and B is cone shape with crown end. The crown carries two slots S lined with fiber and located diametrically opposite to each other. In these slots fit the cross bar A1, which is made up of a great number of laminations of fine spring steel. By virtue of the spring the looseness in pounding which may occur with ordinary coupling under the varying resistances to the rotation of the armature is absorbed by the spring and a smoother and quieter magneto drive is obtained. The Bosch company says that there is enough spring in the cross bar A1 to permit the magneto to run when its armature shaft is at an angle to the drive shaft, when the coupling also serve as a universal joint.

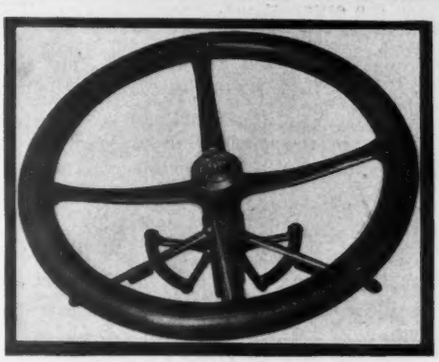


FIG. 2—STANLEY WHEEL LOCK

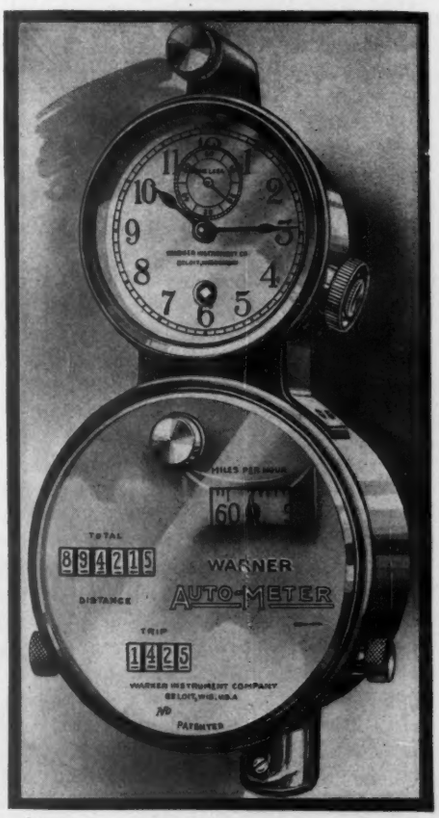


FIG. 3—IMPROVED WARNER AUTO-METER

Stanley Steering Wheel Lock

The Stanley steering wheel lock, manufactured by Theodore D. Stanley, Detroit, Mich., is used to prevent theft of motor cars. It operates by disconnecting the steering wheel from the steering column so that when it is locked you can spin the wheel around loosely on the column. When the car is in commission the wheel is rigid to the column.

The locking is accomplished by a key shown in Fig. 2. This key operates what might be designated as a multiple-disk clutch mechanism carried in the top of the steering column and operated by the key. The upper end of the steering column is recessed internally and fitted with cup-shaped casting threaded internally. Into this is screwed a threaded number which carries part of the locking mechanism consisting of the disks already referred to. When the key is turned it rotates the movable disks on which disks are ears which enter a spiral passageway thereby disengaging the locking bolt. When it is desired to put the steering wheel into commission the key is inserted as before and a part rotation completes the work.

From the

SIGNS OF THE TIMES—1912 PACKARD SIX IN FRONT OF EIFFEL TOWER, PARIS

NEW Club at Somonauk—Thirty members have joined the newly organized club at Somonauk, Ill. J. N. Antoine is president; M. Hoy Beveridge vice-president and Charles Stoutenberg secretary and treasurer.

California Building Highway—The state of California is now actively engaged in the construction of the Alpine state highway across the Sierra Nevada mountains and which will be opened to transcontinental travel during the coming month. The citizens of Woodford, Cal., have offered an attractive cup to the motorist who first reaches their city over the new scenic highway.

Will Show Motor Trucks—An exposition of motor trucks will be a feature of the mammoth industrial exposition to be held sociation of Milwaukee in the Auditorium, from September 2 to 12. It will be exclusively a Milwaukee-made show, and as the Wisconsin metropolis is one of the largest motor truck manufacturing centers in America, this division will be given much attention. The exposition will be commemorative of the fiftieth anniversary of the founding of the association. W. J. Fairbairn, secretary of the Metal Trades and Founders' Association, has been named manager of the truck division. More than a dozen different firms will exhibit their lines.

Big Crops Expected—Indications point to a large crop to be harvested this year in the Sacramento valley, especially barley and wheat, and motor car dealers in that section expect to prosper accordingly.

Starting a New Club—Owners of the Allegheny valley have arranged to organize a club with headquarters at Tarentum, Pa. A committee is now securing subscriptions for a clubhouse and memberships to the organization.

Virginians Organizing—Plans are being prepared for the erection of a big clubhouse between Elkins, W. Va., and Bellington, W. Va., to be built by motorists of these two towns and Philippi, W. Va. Golf links also will be provided. The committee in charge is composed of Senator Samuel V. Woods and Joseph W. Byerer, Philippi, W. Va., Captain S. R. Raese and J. E. Keyser.

Studebaker Plans Owners' Tour—A social tour for drivers of E-M-F and Flanders cars will be given from Indianapolis to Chicago and return by the Studebaker Bros. Co., of Indianapolis. The tentative date selected is September 3, 4 and 5, it being the plan to have the tourists spend Labor day in Chicago. The company will send special cars carrying mechanics and extra tires, which will be placed at the service of the drivers without charge. E-M-F and Flanders owners of Indianapolis and vicinity are being invited to attend.

Encouraging Touring—The Victoria Automobile Association will award a gold medal to the first motorist touring continuously between Victoria and Winnipeg, Canada, and have made the following rules governing the contest: Tour to be between Victoria and Winnipeg, over a continuous route, and, excepting at ferries, must be made entirely under car's own power; tour to be run east or west, at entrant's option; medal to be awarded to either driver or owner of car, whichever of the two registers with the Victoria Automobile Association. Excepting the ferry journey between Victoria and the mainland no ferry of more than 1 mile in distance will be permitted; route shall not go outside of provinces of Manitoba, Saskatchewan, Alber and British Columbia, Idaho and Washington; entrant's log to be indorsed every hundred miles in provinces named, with exception of British Columbia, Idaho and Washington, where indorsement shall be made each 40 miles by postmaster, town official or prominent merchant.

One More for Pennsylvania—A charter has been granted to the Monongahela Valley Automobile Club. J. J. Hott, of Charleroi, Pa., is president, and the board of directors is composed of Kerfoot W. Daly, C. H. Van Voorhis, of Charleroi; Dr. A. R. Wilson, of Monessen; M. J. O'Donnell, of Domora; T. J. Eckbreth, Monongahela, and Dr. R. E. French, of Bentleyville.

Green and White Ohio's Colors—Secretary of State Graves, of Ohio, has selected green and white as the colors for the 1912 tags for the Buckeye state. The green will appear on a white background and will be the color of the number, the year 1912 and the word "Ohio." Bids were opened recently for 40,000 tags for the coming year.

After 1,000 Members—Although the Automobile Club of Hartford, Conn., has a membership of 400 at present, which is said to be the largest in proportion to the population of any second or third class cities of the country, the officers have started a 1,000 membership campaign. Literature and personal solicitation are resulting in increased membership. The club at present is located in the Allyn house building, but the decision of the Allyn estate to tear down that portion of its building to make room for a new large addition means that the club will have to move.

Poses Before Buddha—The Hupp Motor Car Co. has received the details of the photographing of the world-touring Hupmobile before Diabutsu, the Great Buddha, at Kamakura, Japan. Few tourists who visit Yokohama leave without going to view the great statue of Buddha, which lacks 5 inches of being 50 feet in height. Latterly the authorities have permitted tourists to pose for their photographs in front of the colossal squatting figure. But no tourists' camera may be used. There is a photographer on the spot—a Japanese—the eye of whose camera never sees ought that it should not see, as a tourist's camera might. When the Hupmobile party drove into the grounds which surround the statue they were met with protestations from the attendants, and it was only after much argument, discussion and explanation that the car was allowed to continue and pose before the huge bronze figure, for the camera of the official photographer. The Great Buddha was cast in the thirteenth century. Some idea of its huge

Four Winds

proportions may be gained from the length of the face—8 feet. The eyes are said to be of pure gold and silver; and yet other images are housed inside the Great Buddha.

Boosting Burlington—Burlington, Vt., dealers and private owners are to have what they call a Burlington reliability run September 19, 21 and 23. The event will be a boosting stunt for the city of Burlington and the Vermont motor business in general. The first day run will be to Rutland and return; the second day run to Montpelier-Barre and return, and the last day run to East Alburg, Swanton, St. Albans and return.

Columbus Plans a Meet—Unless there are unexpected complications, a race meet will be held at the Columbus driving park, Columbus, O., September 2, under the auspices of the Columbus Automobile Club. Two features are being discussed and will probably be announced soon. One will be a 100-mile race open to all cars for the Hoster-Columbus trophy, valued at $500. The tentative program consists of nine events in all.

New Wisconsin Road Law—The new Wisconsin state aid highway law is unique in that it covers not only the work of grading, draining, shaping and surfacing highways with stone and gravel, but includes earth or dirt road work of a permanent nature, such as cutting down hills, relocating roads around hills, underdraining swampy places and making fills across swamps. It also includes the construction of bridges and culverts more than 6 feet in span. However, all roads and bridges must be improved under the prospective system of state highways selected for each county by its board of supervisors.

Want Park Opened—Believing that motor-driven vehicles now should be admitted to the scenic wonderland of the country, there has been organized in Pocatello, Idaho, the Bannock County Automobile Club for the announced purpose of enlisting "the full power of the American Automobile Association in a movement having for its end a revocation of a federal rule and regulation excluding motor cars from Yellowstone national park." Motor cars now are excluded from the park on the alleged ground of danger to horse-drawn traffic on the excellent government roads, but it is vigorously contended that the adoption of proper rules and regulations can effectually safeguard traffic in Yellowstone park as well as in other parks throughout the country. It is understood that the chartered stage lines operating in the park do not look with any vast favor upon the admission of the more enjoyable and time-saving vehicle.

Racing at Santa Rosa—Plans have been outlined by the Santa Rosa Automobile Association for 2 days of automobile racing during the admission day celebration of the Native Sons of California, September 9-10.

Appointment for Kneedler—C. A. Kneedler has, upon the recommendation of the Iowa State Automobile Association, been appointed official representative of the American Automobile Association contest board for the state of Iowa.

Vermont Show in April—George D. Jarvis, president of the Burlington Merchants' Protective Association, announces that the second annual Vermont motor car show will be held in the armory or new convention hall, Burlington, April 29 to May 4. The Green mountainers are planning to make the show an important event, hence their desire to announce their date so far in advance.

Wisconsin Issues New Tags—W. R. McGovern, of Milwaukee, holds license tag No. 1 W 1911, the first issued by the secretary of state of Wisconsin under the new registration law, effective August 1. The fee is $5 annually, and Mr. McGovern, as well as others who register before January 1, will be required to pay the $5 fee and another $5 fee for renewal on January 1, 1912, despite the fact that it is only 5 months between the two dates. The 1911 tags are enameled in Dutch green and come in pairs, for front and rear. The 1912 tags will be enameled in orange. About 20,000 cars will be registered in Wisconsin on January 1, according to the estimates of the secretary of state.

HUPMOBILE BEFORE STATUE OF BUDDHA

Spending $50,000 for Boulevard—It has been decided to bond Lake township, Michigan, for $50,000 to construct a macadamized road along the entire lake front within the township. The township has employed a Mt. Clemens attorney and construction work will begin at once.

Long Trip in Electric—A Detroit electric was driven from Indianapolis to Chicago a few days ago by Mrs. George J. Cook, of Indianapolis, and Mrs. R. A. Campbell, of Chicago. The distance was 207 miles and the actual running time was 16 hours. Charging stations were found at Lebanon, Lafayette, Renssalaer and Hammond.

Ride for Detroit Orphans—The Wolverine Automobile Club of Detroit celebrated orphans' day Friday and nearly 100 cars were placed at the disposal of the committee. The asylums were all visited and full loads of children were taken on a trip, the itinerary of which included the beautiful residences of the summer colony at Grosse Pointe, and the circuit of Belle Isle.

Superior Adopting Superior Service—The construction and repair department of the fire department at Superior, Wis., the second largest city in Wisconsin, is constructing a motor hose and chemical truck, to be ready for service about September 1. The new apparatus will be used to cover fires in the outskirts. The city already owns a motor fire truck and has provided the chiefs of both fire and police departments with cars.

Lake Tahoe Run Plans—The pathfinding trip completed, final arrangements are being made for the Lake Tahoe endurance run, to be held from Oakland to Tahoe Tavern and return August 26-29. The general scheme is practically the same as last year. It is intended to make this tour an annual affair and with this in view the management of the Tahoe tavern will erect a granite monument on the grounds on which the names of the winning car and owner will be inscribed each year. In addition to this the owner will be given a parchment certificate. Should more than one car tie on the high score all the cars so tied will have their names inscribed and will receive certificates. There will be a private owners' division which will be open to owners who may wish to make the run for the pleasure of it without regard for the contest features.

Method of Analyzing Exhaust Gases

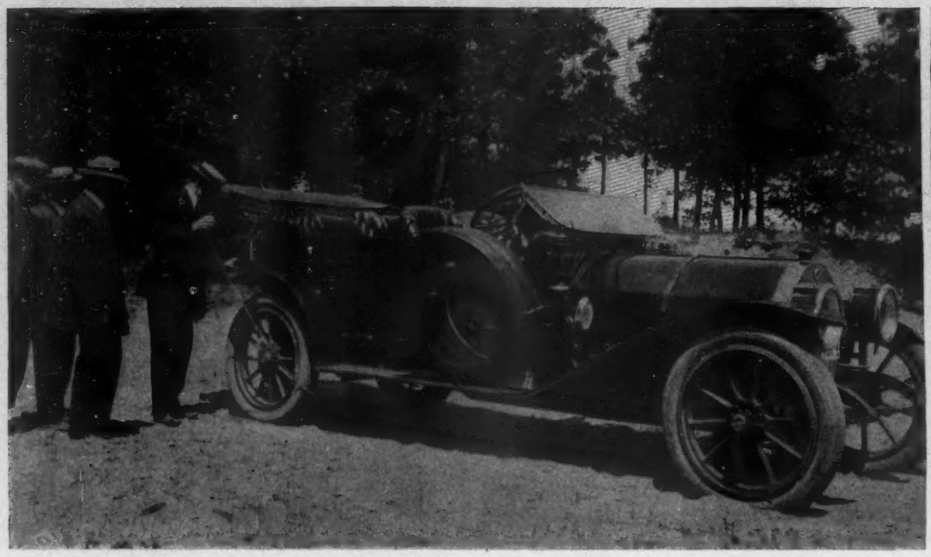


FIG. I. PROFESSOR HAYES TESTING EXHAUST GASES ON A PREMIER SIX

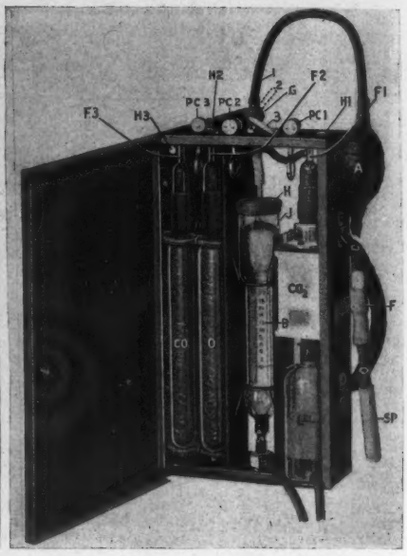


FIG. 2. THE INSTRUMENT HE USED

FOR the sturdy of carburetion and the improvement of gasoline engine efficiency, the Combustion Appliances Co., Rogers Park, Chicago, is now marketing an instrument which will determine when the mixture is too lean, when the mixture is too rich, and when the mixture is just right. It also is claimed that this instrument enables one to know when combustion of the gases in the cylinder is complete; what percentage of the combustible is in the exhaust; when there are air leaks in the manifolds or elsewhere; where the air-leaks are located; which cylinder is misfiring and why; what percentage of gasoline vapor is in the unburned mixture from the carbureter; and, in fact, almost everything relating to mixtures.

Heretofore but very few manufacturers of motor cars have employed any scientific means of learning whether or not the motors which they were making were delivering their required horsepower under the most economical or efficient conditions. A motor is required to develop a certain horsepower at a certain speed, and without more than a characteristic amount of noise. If it does these things it is ready for assembly into the chassis of the motor car. Few makers have given any serious concern to the possibilities of an exhaust gas analysis to learn if possible improvements could be made in the carburetion and ignition of the gases. The final result of practically all tests, horsepower, has been the determining factor against all carbureters and ignition devices; and when the car is delivered into the hands of the owner, who neither has a dynamometer nor any desire to see how fast the car can run, the odor and color of the exhaust gases is all that he has to indicate that his carbureter is properly adjusted, and combustion complete.

Chicago Concern Offers a Simple Scheme of Discovering Whether or Not Mixture Is too Lean or Rich—Good for Study of Carburetion

Smoke, smell and carbon deposits all are products of combustion, but not necessarily of incomplete combustion of the explosive mixture as formed in the carbureter. Smoke may arise entirely from the lubricating oil in the cylinders. If the odor of gasoline is present it is sure evidence that combustion is incomplete, but one may have incomplete combustion in the absence of all odor. Hydrogen is odorless and carbon monoxide is both odorless and colorless. These gases both may be present to a considerable extent in an odorless exhaust, and it, therefore, cannot be assumed that combustion is perfect when odor is absent.

As for carbon deposits, they may be due in part to the cylinder oil and even wholly to this cause; some of it also may be due to dust which is drawn through the carbureter; but usually it is safe to assume that such deposits are aggravated, if not originated, by incomplete combustion.

Noted authorities have stated that air carbureted with about 5 or 6 per cent of gasoline vapor forms about the most explosive mixture; and that very useful information on the subject of combustion may be obtained from analyzing the exhaust gases. It has been found that the rate of flame propagation is different for different ratios of air to fuel vapor. For every load there is some best mixture quality and for every mixture quality there is some best time of ignition. For normal loads the mixture should contain from 30 to 40 per cent excess air. The efficiency of a gasoline engine naturally depends upon the degree to which combustion is complete. Neglecting water vapor, the exhaust should show 14.4 per cent carbon dioxide and 85.6 per cent nitrogen. When oxygen occurs in the exhaust, too much air has been admitted. When neither oxygen nor carbon monoxide appears in the exhaust the air is in just the right proportion.

Excellent data exist which show conclusively that the percentage volume of CO_2 in the exhaust of an internal combustion engine is the best exponent of the combustion efficiency of such engines, and on this and similar data relative to the other gases included in the exhaust gas, are based the operation and construction of the instrument shown in Fig. 2. The view at the left showing the instrument in use on a large Premier car, and the illustration at the right showing the details of its construction.

The apparatus reduced to its simple elements consists of a gas-measuring tube or burette B, and three vessels for chemicals. These vessels are marked in the illustration to indicate the gases which the contained reagents will absorb, viz.: CO_2, carbon dioxide; O, oxygen, and CO, carbon monoxide.

The operation of analysis consists, first, of getting the gas sample into B and measuring it; second, of passing the measured gas into the CO_2 chamber where the carbon dioxide is absorbed; and third, of returning the gas to B, where it is again measured. The contraction is read off on the scale of B, which is calibrated to give the percentage of the gas absorbed. The residue after the CO_2 absorption may be passed successively into the O and CO chambers, the further contractions expressing the percentages of O and CO respectively.

The operation in detail is as follows: First remove the stopper from the leveling bottle L, and also the stopper from the air vent at the rear of the CO_2 chamber. The engine of the motor car may now be started. When ready to take a sample of the exhaust gases, place the lever of G upright in position I and work the aspirator bulb A with the hand. Gas will be pumped through B and will bubble out through L.

The pumping operation should be continued until you are satisfied that all of the air has been pumped out of the connecting tube and that a fair sample of the exhaust gas is contained in B.

Next remove L from its compartment and hold it against the instrument case in such a position that the surface of the water in L will be on a level with the zero mark on the scale of B. Turn the lever of G into position 2 and water will flow from L into B, expelling the surplus gas through a vent in G. When the water reaches the zero mark, move the lever of G into position 3. The surfaces of the water in L and B should now be on the same level and both in the same horizontal plane with the zero mark.

You have now made what gas analysts call the primary measurement. It is well to say in this connection that the volume of a gas is always affected by pressure and temperature. As the analysis is made by the volumetric method it is essential that all measurements should be made at the same pressure and temperature. Whenever the scale is read the liquids in L and B must be on the same level. This puts the gas in B under atmospheric pressure because L is open to the atmosphere. B is contained in a glass jacket J, which is filled with water. The gas on entering B takes the temperature of the water. The jacket arrangement therefore insures that all measurements made on any gas sample will be taken at the same temperature.

Next squeeze the pinch cock PC1 open and raise L. The gas will pass from B into the CO_2 chamber. Close PC1 when the water enters the capillary tube at the top of B.

Next lower L and again open PC1. The gas will flow back into B. Close PC1 when the liquid in the CO_2 chamber reaches the capillary tube above the rubber connection. Raise L until the two water surfaces are again on the same level and read the scale of B. If conditions as to carburetion and combustion are correct the water level in B will stand in the neighborhood of the 14 per cent mark. If there is less than 13 or 14 per cent CO_2, something is wrong. Change the adjustments and take another sample. An analysis for CO_2 can be made as often as once a minute.

If there is any doubt as to the cause of the low CO_2 the residue of the gas sample should be passed first into the O tube and the percentage of oxygen determined, and then into the CO tube for the determination of carbon monoxide.

To determine O the clamp C1 is first screwed open and the stopper S removed. The gas is then manipulated in the same manner as for the CO_2 absorption. When through with the O, open PC2 and proceed in the same manner for the carbon monoxide. It will take about 5 minutes each for the O and CO absorptions.

The absorber for CO_2 is potash lye, for O, an alkaline solution of pyrogallic acid, and for CO either an acid or an ammonical solution of cuprous chloride. These absorbers are easily prepared. They are inexpensive. The CO_2 and CO solutions will answer for several hundred gas samples. The O solution should be renewed after it has ben used about fifty times.

It is not necessary in ordinary practice to look for any combustible but carbon monoxide. Hydrogen and certain gases of the hydro-carbon series may occur when CO is present, but they will not be found if CO is absent. Proper adjustment of the carbureter, etc., can be attained in a very few moments. When the right percentage of CO_2 is secured and CO is absent one will know beyond all guess-work that things are exactly as they should be. The engines can be tested under load or otherwise, just as desired. Tests can be made on the road if necessary. Exhaust gas analysis opens a very wide field for the most interesting and most profitable investigation of an engine.

The Motorists' Bookman

A Motoring Romance

"THE GIRL in the Other Seat" is the title of a story by Henry Webster. The tale is of a young Vanderbilt racer who, in collaboration with a chemist, perfects a new fuel which is cheaper and safer than gasoline. Because of the inability of the inventors, financially, to introduce and manufacture the product, an unscrupulous lawyer and his backers try to bluff the inventors into selling the invention and accepting their terms. These efforts prove futile because of the "girl in the other seat," who plays an important role in settling the business and love affairs of the young inventor. It is a good story and the vacationist, whether he or she be a motorist or traveler, will find it diverting for the idle hour. D. Appleton & Co., New York. Price $1.25.

Book for Young Boys

"The Young Electrician," by Hammond Hall, is intended to afford instructive amusement to the young boy, and its 289 pages and eighty-two illustrations cover such subjects as: The romance of electrical science; experiments in attraction and repulsion; the goldleaf electroscope, atmospheric electricity, galvanic or voltaic electricity, the charging and care of batteries, electrotyping and electroplating, magnetism, electro magnetism, the induction coil, the dynamo, electric lighting, and wireless telegraphy. Published by the Macmillan Co., New York. Price $1.50.

Machine Shop Suggestions

"Shop Kinks and Machine-Shop Chat" is the title of a 400-page illustrated book on machine shop practice, edited by Robert Grimshaw. It contains the advanced methods of representative shops, showing special ways of doing things better, more cheaply and more rapidly than usual. A paragraph will suffice to show the nature of the information given: "In pipe fitting the monkey wrench may be used as a substitute for the ordinary and usually good-for-nothing pipe tongs, in a very simple manner. Bring the jaws of the wrench to the side of the pipe, then put a short piece of an old round file between the piece to be unscrewed and the lower jaw of the wrench. The piece of file will roll between the pipe or nipple and the jaw, and will so greatly increase the grip as to enable good pipe fitting to be done." The many kinks and wrinkles suggested will be helpful to all who are interested in things mechanical. The Norman W. Henley Pub. Co., New York. Price $2.50.

A Practical Shop Book

"Drop Forging, Die Sinking and Machine Forming of Steel" is a 341-paged volume by Joseph V. Woodworth, dealing with the processes, methods, machines, tools and details of modern shop practice. It is profusely illustrated and should prove extremely useful. The scope of the book may be judged from some of the following chapter titles: Die-sinking and drop forging practice and design for modern forging; pressing and stamping of duplicate parts; die-sinking methods, processes, machines and tools; drop forging dies, their design, construction and use in drop hammer and forging machines; drop forging and hardening plants, their designs, fundamental conditions, and the equipment involved in their attainment; machine forging with examples of modern practice and tools involved. The Norman W. Henley Pub. Co., New York. Price $2.50.

A Book on Welding

A subject which only in the last few years has been given any considerable amount of attention is that of welding, and the volume under consideration by Richard N. Hart is the first to present, under one cover, all the data on this subject. A section is devoted to the subject of metals, another to welding. Commercial metals are given attention. McGraw-Hill Book Co., New York. Price $2.50.

Among the Makers

JOHNSON Quite Bergdoll—E. C. Johnson has severed his connection as vice-president and general sales manager of the Louis J. Bergdoll Motor Co., of Philadelphia.

Claim Disputed—The claim that C. L. Herrington, of Kansas City, has sold more Fords than any other dealer in the country is disputed by some of the other agents, the Minneapolis representatives claiming to have sold more than the Missouri concern.

Aluminum Company Reorganizes—The Standard Aluminum Co., of Two Rivers, Wis., has been reorganized and the capital stock increased from $15,000 to $50,000. A new factory building, three stories high, 44 by 200 feet in size, will be erected at once. Electrical drive will be employed throughout.

Enlargement Planned—It is reported from Waukesha, Wis., that work will be started shortly on plans for a material enlargement of the plant of the Waukesha Motor Co. The company recently increased its capital stock from $100,000 to $200,000. Among the proposed improvements is a large addition to the present shops, which were erected only a year and a half ago. Much new special machinery will be installed, it is said.

New Men for Selden—Changes in the staff of the Selden Motor Vehicle Co., of Rochester, N. Y., have resulted in the appointment as sales manager of James J. Joyce, who has been general manager of the motor car department of the American Locomotive Co. for several years. Fred A. Law, formerly a Columbia designer, has become the Selden superintendent. Fred A. Hoblett, president of the Rector Engineering Co., will devote part of his time to Selden business.

Williams Making a Change—George Williams, superintendent of the motor car department of the J. I. Case Threshing Machine Co., of Racine, Wis., for the last 12 months, has resigned and will become associated with a large motor car concern in which, it is understood, he has acquired a heavy interest. Mr. Williams has been superintendent of the Case works since A. J. Pierce, founder of the Pierce Motor Co., now the car department of the Case company, resigned to take a long rest.

Henderson Reunion—Meeting for the first time in 24 years President C. P. Henderson and Vice-President R. P. Henderson, of the Henderson Sales Co., handler of the Cole car, welcomed their two brothers, F. A. and J. R. Henderson, at Indianapolis recently and since then the four men have been touring the east in one of the 1912 Cole machines. F. A. Henderson is a big fruit grower in Oklahoma and J. R. Henderson is a lumber king in Oregon. It was at the suggestion of C. P. Henderson that the reunion was brought about and the trip east started. The party went up through Canada and down through New England, picking up W. L. Coates, eastern sales manager at Burlington, Vt. They are now touring back to Indianapolis.

SCENE IN E-M-F FOUNDRY YARD

The accompanying illustration shows the yard of the foundry at plant 3, which is one of the eight plants of the E-M-F company system, all exclusively engaged in the manufacture of E-M-F 30 and Flanders 20 cars. The workmen are starting with pig iron for the foundry where the cylinders are cast. The metallic products extracted from iron ores for use in the arts generally are divided into three classes: Pig or cast iron, wrought iron, and steel. The piles of pigs or oblong bars shown above are of cast iron as it comes from the smelting furnaces of the steel mill. In the foundry, these pigs are again thrown into a furnace, generally known as a cupola, and melted; then, while in the molten state, the iron is poured into molds and the cylinders cast. As the molten metal cools, it hardens; then the molds, which are made from sand, are broken down, but the metal retains the shape of the mold and the cylinders are formed. The cylinder castings thus formed are cleaned up and machined, and assembled into motors

Case Ready for 1912—The J. I. Case Threshing Machine Co., of Racine, Wis., will commence work on the 1912 production August 15. The motor works are closed for several days, while new machinery and equipment is being installed and the final work on the new models is completed. The production for the coming year will be considerably increased.

Big Suit Against Velie—The Holbrook-Armstrong Iron Co., of Racine, Wis., a well known motor and parts manufacturing concern, has brought suit against the Velie Motor Vehicle Co., of Moline, Ill., for $105,000 damages. The complaint says that on May 13, 1910, the Velie company awarded a contract to the Racine concern for the manufacture of 1,000 motors at a cost of $210 each, with the option of any additional number of motors up to 1,000 at the same price. In order to take care of this contract, the Holbrook-Armstrong company asserts that it increased the size of the plant and made other improvements at a cost of $45,000. Subsequently, it is alleged, the Velie company refused to turn over patterns and jigs, in spite of several demands. The Racine company claims it lost $60,000 in profits, in addition to the amount spent on plant enlargements, and asks that the Velie company be required to reimburse it in the sum of $105,000.

Duryea's Saginaw Factory—The recently organized Duryea Auto Co. is now in operation in its new factory at Rust and Jefferson streets, Saginaw, and will be turning out finished product within 60 days, a light delivery wagon being the leader at first. The shops at Reading will be continued and will supply styles not made at Saginaw. The new factory is a fireproof steel-frame building with concrete floor and stone walls up nearly to the windows. Above this it is of corrugated steel with strong roof of 2-inch matched pine covered with paper, tar and gravel in a most substantial manner and supporting several clear stories which afford light and ventilation. The building covers about 2 acres of the 6-acre plot, not counting the office adjoining. It is located within ½ mile of the city hall and on the rapidly growing east side near the geographical center of the city. Workmen's houses are all around it so the labor cost is low on this account. Paved streets reach two

and Dealers

TESTING SAMPLES OF PIG IRON

In testing samples of pig iron in one of the E-M-F laboratories, the iron must conform to a formula, tested and adopted by the E-M-F Co., which is kept a rigid trade secret. Owing to the intensely reducing conditions prevailing in a blast furnace, to the high temperature and to the presence of metallic iron, many impurities, such as phosphorus, sulphur, manganese and silicon, which always are present in greater or less amount in the ore, flux and fuel used in the process of manufacture are partially or wholly reduced to the metallic state, and in this condition are retained, in part at least, by the molten cast iron. Cast iron, therefore, is not simply an association of iron and carbon, but contains also varying amounts of the impurities just mentioned. It is the duty, therefore, of the chemists shown above to examine or analyze samples of the cast iron used in making the motor cylinders and see that the percentage of impurities therein does not approach a figure that would affect the process of manufacture or reduce the strength of the finished product

sides of the factory and sidewalks, sewers, gas and water are all in place. A testing track, ⅛ of a mile per lap, surrounds the plat and contains some irregular going. Machinery already has been installed sufficient for several thousand vehicles per year, and more will be installed as needed. General electric motors supply power to the various departments and a big gas engine also is available. Eight low-priced delivery vehicles will be first produced and other styles taken up later.

Ramblers' Annual Contest—Sixty-five branch and sales managers of the Thomas B. Jeffery Co., Kenosha, Wis., attended the annual Rambler congress at the factory on August 1, 2 and 3. In addition to discussing plans for the 1912 season and receiving instructions in regard to the improvements and general design of the new Ramblers, the agents were provided with a round of entertainment. The big event of the entertainment was a burlesque ball game between the east and the west, the contest ending in a 14 to 14 tie. The branch managers present were: G. B. Muma, Canada; J. A. Rose, St. Louis; C. M. LeRoux, Kansas City; L. E. Rood and L. A. Poundstone, Indiana; F. W. Rosche, Ohio; C. D. Dunham, Georgia; I. R. Campbell, Des Moines; H. E. Tanner, New York; T. D. Cobbs, Jr., Texas; P. J. Keating, Minneapolis; C. S. Culp, Iowa, and others, who represent the Rambler.

Midgley Does Not Infringe—In the suit of the Metallic Rubber Tire Co., of Jersey City, N. J., owner of the Adams patent, brought against the Hartford Rubber Works Co., of Hartford, Conn., Judge Platt, of the United States circuit court for the district of Connecticut, decided that Midgley tread, which is incorporated in the Hartford tire, does not infringe patent No. 609320, issued August 16, 1898, to Dr. Calvin T. Adams, of New York, which covers a vehicle tire and more specifically a bicycle tire.

Atlas Making Knight Engines—The Atlas Engine Works, of Indianapolis, has arranged to become the exclusive trade builder in the United States for the Silent Knight motor, the company having signed a contract with Charles Y. Knight, of England. The Atlas company expects to supply practically all of the Silent Knight motors sold in this country outside of the motor car concerns manufacturing their own engines. It already has been announced that the Silent Knight will be a part of the regular 1912 equipment, which will be used on the Stoddard-Dayton, Columbia and Stearns.

Baker Rim in New York—The Baker demountable rim, made by the Universal Rim Co., of Chicago, now is represented in New York through a branch at 2002 Broadway.

Mitchell Convention Called — Sales agents of the Mitchell-Lewis Motor Co. will hold a convention at the factory in Racine, Wis., early in September. The salesmen will be instructed in 1912 motordom and receive practical schooling in the new Mitchell models.

Change at Saginaw—Following the consolidation of the Welch-Detroit Auto Co., of Saginaw, Mich., with the Marquette Co., of Saginaw, and the removal of Manager Melvin Wilcox to Flint, as head of the motor plant of the General Motors Co., the appointment of Merrill Wilcox as manager of the Jackson-Church-Wilcox Co. of Saginaw, is announced. Mr. Wilcox has been secretary of the local concern since its organization.

Grand Rapids' Latest—One of Grand Rapids' latest concerns is the Van Commercial Car Co., which will manufacture commercial motor cars. The firm has been established in a two-story brick factory building on Third street. The company is incorporated for $50,000, with officers as follows: President, George Van Antwerp; vice-president, Richard A. Bolthouse; secretary, William J. Landman; treasurer, John W. Landman.

Body Business Good—A large addition has been made to the plant of the Auto Body and Specialty Co., of Flint, Mich., which is located on South Beach street. A building two stories high, 42 feet wide and 82 feet long has been erected and the company now has about six times the capacity that it had before the addition was constructed. In a short time the company will begin operating the factory at its capacity. About sixty men will be employed and from fifty to 150 car bodies will be manufactured every week.

Boston Expansion—Announcement was made a few days ago that still another new building would be erected in the Back Bay for motor homes for Boston dealers. This is the second announcement within a few days. The latest structure will be at the junction of Beacon street and Commonwealth avenue and it will house the Lozier and the United States Tire Co. It will be a four-story brick building of reinforced concrete. The lessees of the other building in addition to the Premier is to be the Firestone, but the third occupant is not known yet. With the Packard, Winton, Locomobile, Alco, Stoddard-Dayton, Pullman, Stanley and a couple of accessory firms already in the Fenway, the addition of the second contingent will make a respectable showing there, and it should have a tendency to reduce the rents on Boylston street, which were very high because of the big demand for salesrooms.

Brief Business Announcements

COLUMBUS, O.—O. G. Roberts & Co., 933 East Gay street, have taken the central Ohio agency for the Ohio electric.

Racine, Wis.—The Racine Motor and Supply Co. will conduct a garage in addition to its repair shops and motor works. Its new building on State street is practically completed.

Boston, Mass.—The salesrooms of the Cameron Car Co., of Beverly, on Boylston street, have been vacated by that concern and they are now occupied by the Malley Motor Vehicle Co., agent for the Warren.

Detroit, Mich.—Claire L. Barnes & Co. have completed arrangements whereby they become direct factory representative, selling the entire output of the Fort Pitt Steel Casting Co., McKeesport, Pa.

Grand Rapids, Mich.—John T. Bolton, formerly local agent of the Krit car, has joined the sales force of the Lion Motor Car Co. He is in the city making arrangements for the establishment of an agency for his line.

Detroit, Mich.—The resignation of E. E. McCleish as advertising manager of the Regal Motor Car Co. is announced. Mr. McCleish becomes associated with the Paige-Detroit Motor Car Co. in the capacity of advertising and publicity manager.

Philadelphia, Pa.—Kahn & Greenberg have sold to Louis Levi the recently built garage, 2330 Market street, southeast corner of Twenty-fourth and Market streets, for a consideration not disclosed. The building has been leased to the Stanley Motor Carriage Co., of Newton, Mass., for a term of years.

Cleveland, O.—The Standard Welding Co., of Cleveland, O., electric welder and manufacturer of rims, seamless steel tubing and tubular bent parts, has terminated its arrangements with L. F. McClennan & Co., Chicago, for the sale of its products. As soon as practical it will open permanent offices in that city.

Conneaut, O.—The Fritz-Fix Co., which formerly was well known as the manufacturer of window curtain poles and fixtures at Conneaut, will shortly start in the manufacturing business again in that place. Its product will be the Right-of-Way horn. Conneaut promoters have taken up the patent and financed the operation.

Indianapolis, Ind.—John G. Wallick, who has been Indianapolis branch manager for the Remy Electric Co., has resigned to become manager of the Meridian Auto Co. of this city, agent for the Packard and Waverley. Wallick has been succeeded by E. L. Jones, who has had charge of Remy sales in middle western territory. H. J. Schwartz, who has been vice-president and manager of the Meridian Auto Co., has resigned to take charge of Packard sales in Columbus, O., and vicinity.

Toledo, O.—E. W. K. Burg has closed a deal whereby he will handle the Stearns season of 1912. He is also distributer for the Hupp-Yeats electrics.

Jeanette, Pa.—The American Rubber and Fabric Co. has finally decided to build its big plant in Jeanette. It will manufacture tires and will employ seventy-five men at the start.

Columbus, O.—The Hearn Tire and Rubber Co., recently organized in Columbus, with W. H. Hearn as general manager, has opened a branch to handle Imperial tires in a new building at Gay and Fourth streets.

Portland, Ore.—Harry Doherty, who but a short time ago was appointed retail sales manager of the E-M-F Northwest Co., Portland, has left that position to take the management of the new E-M-F branch at Tacoma, Wash.

Kittanning, Pa.—The Kittanning Auto Traffic Co. has been organized at Kittanning, the county seat of Armstrong county, Pa., by M. S. Jack, E. C. Procius, M. S. Schaefer and others of that place. It will do a general motor car and accessory business.

Boston, Mass.—The Henley-Kimball Co., which has taken on the Hudson, recently relinquished by the Whitten-Gilmore Co., has moved into its salesrooms at the corner of Boylston and Gloucester streets, just two doors away from the former Hudson home.

New Orleans, La.—Ground was broken for a garage and supply warehouse to be erected at the corner of Madison and Lee avenues, in the Lemann addition, by the Donaldsonville Automobile Co., which concern is now in process of organization. The building will be one story high, of brick and frame construction, with rock-faced galvanized iron sidings.

Detroit, Mich.—F. L. Holmes, former general manager of the Jackson Automobile Co., has taken the position of manager with the Clarke-Carter Automobile Co., taking up his duties Monday. While Mr. Holmes is general manager of the company, which manufactures the Cutting, it is also understood that he has large financial interests in the concern.

Detroit, Mich.—The location of the western office of the J. S. Bretz Co., of New York, has been changed to 504 Ford building, Detroit, Mich., where J. W. Hertzler, western representative, will make his headquarters. A sample line of F. & S. imported ball bearings, German steel balls, Star ball retainers, U. & H. master magnetos, Bowden wire mechanism, Hartford universal joints and clutches, and drop forgings will be displayed there for the convenience of the western trade.

Pittsburg, Pa.—The Pioneer Motor Car Co., local distributor of the Locomobile and Hudson cars, announces the appointment of F. J. Esperon as a sales manager.

Eau Claire, Wis.—Allan Redmond, of Chippewa Falls, Wis., and Irvine Huebner, of Chicago, have established a garage and repair shop in the Chase building, River street, in Eau Claire. The firm intends to take on several agency lines for the 1912 season.

Galion, O.—W. E. Dunston will assume general management of the Ditwiler Mfg. Co. after September 1. Mr. Dunston has been chief engineer for some years of the Dayton Motor Car Co., also engineer with the Olds Motor Car Co., Cadillac Motor Car Co. and Chalmers Motor Car Co.

Chicago—A branch office of the Federal Miniature Lamp Co., of Cleveland, has been established at 301 Fort Dearborn building, Chicago. The new office is in charge of Frederick S. Armstrong. The Chicago warerooms are located in the Cambridge building, corner of Randolph street and Fifth avenue.

Toledo, O.—B. E. Griffin, of Toledo, has closed for the Lauth-Juergens line of motor vehicles in Lucas, Ottawa and Wood counties. These trucks are manufactured at Fremont, O., where the plant was moved from Chicago about 2 years ago. Griffin will make his headquarters at the Twenty-second street garage.

Indianapolis, Ind.—J. C. Donahue, for some time identified with the motor car trade in Pittsburg, has been appointed sales manager for the Clark Motor Car Co., Shelbyville. John Clark, founder of the Clark car, who has been superintendent of the company's assembling department, has resigned.

Toledo, O.—A voluntary petition in bankruptcy has been filed in the United States district court of Toledo by H. J. and E. S. Linesmith, of Lima. The concern has conducted a garage and sales agency at Lima under the firm name of H. J. Lindesmith & Co. The assets are given as $4,178 with liabilities of $7,395.04.

Cleveland, O.—Simon Davis, who for the past 5 years has been connected with the Diamond Rubber Co. in the capacity of Ohio and Indiana representative, has severed his connection with that company and has entered the employ of the Consolidated Rubber Tire Co., working directly out of the Cleveland branch, which is under the management of O. R. Cook.

Washington, D. C.—The Marion Motor Car Co. has been formed to handle the American and Marion. The company has been incorporated under the laws of Virginia, with $10,000 capital. The officers are George O'Donnell, president; R. N. Harper, vice-president; C. J. Ridgeway, secretary-treasurer. The company has leased 1119 Fourteenth street, and is

making extensive improvements to the property.

Chicago—A branch office of the Jaeger Miniature Lamp Mfg. Co., of New York, has been opened in the Rand-McNally building, 157-173 West Adams street, Chicago.

Kansas City, Mo.—H. T. Wheelock, manager of the motor car department of the John Deere Plow Co., has joined the commercial car department at the Velie factory.

Reading, Pa.—The Acme Motor Car Co. announces that on August 1 it changed its name to the S. G. V. Co. and will continue to manufacture the S. G. V. car under the same management.

Manitowoc, Wis.—Herman Diskowsky has organized the Manitowoc Auto Co. and established a garage and repair shop in the former Kulnick livery, which has been extensively remodeled. This will be the third large garage in Manitowoc.

Columbus, O.—Kimmell Brothers, who have been handling the Speedwell line in central Ohio for several weeks, have taken the central Ohio agency for the Empire. The territory covered includes about thirty counties in the central part of the state.

Berlin, Wis.—Arthur J. Clement, proprietor of the Clements garage, 114-116 Church street, has moved to new quarters in the Hoeffler building on North Second street. The building is 40 by 120 feet in size, two stories high and has a storage capacity alone of thirty-five cars.

Rockford, Ill.—The New Patented Folding Wind Shield Co. is manufacturing a zigzag V-shaped windshield in this city. The company is made up of Dr. T. Henry Whiting and Albert E. Rayment. The office is at 217 Masonic Temple and the factory at 410-18 Elm street.

New York—A. R. Mosler & Co. have found it impossible to any longer carry on their business within the limited space afforded them at 163 West Twenty-ninth street, and therefore they announce that on or about December 1 they will be located in their new factory, which is now under construction at Wakefield park, Yonkers, N. Y.

San Francisco, Cal.—The Duffey Brothers Truck Co., which was formed recently to handle the Durable Dayton motor trucks on the Pacific coast, has finished the arrangement of its offices and salesroom in San Francisco on Market street. Harold D. Knudsen, for a long time connected with the Standard Motor Co., will act as sales manager for the new firm.

Los Angeles, Cal.—Enthused with the possibilities of Los Angeles in general and the possibilities of the commercial motor truck business in particular, A. M. Jamgochilan, a native of Turkey, and later a prominent business man and banker of Manchester, England, is the latest acquisition to the motor trade in Los Angeles. Mr. Jamgochilan during the past week succeeded Nelson G. Douglass as a director and secretary-treasurer of the Commercial Motors Co.

Recent Motor Incorporations

Terre Haute, Ind.—Railway and Automobile Grease Cup Co.; capital $75,000; directors, G. J. Thomson, R. R. Armostrong and O. L. Brown.

Hudson, O.—Buss Co.; capital $25,000; incorporators, Frederick B. Buss, Luella F. and Augusta M. Buss, Frederick C. Waite and W. Kibler.

Cincinnati, O.—Guarantee Automobile Co.; capital $10,000; incorporators, Joseph Berning, H. O. Wendel, Herman Kirschner, William H. Jones and George A. Berning.

Hempstead, N. Y.—G. B. Garage Co.; capital $10,000; to maintain a garage, etc., and deal in motor cars; incorporators, George P. Bouchen, George G. Bouthenon, George M. Bishop, all of New York.

Atlantic City, N. J.—Atlantic Perfected Motor Co.; capital $250,000; to manufacture, sell, etc., and otherwise dispose of motors, engines, etc.; incorporators, Frank Brown, Thomas Kilcourse, Samuel S. P. Phoebus, John S. Ingram.

Boston, Mass.—Hall Automobile Specialties Co.; capital $50,000; incorporators, Daniel E. Hall, Harrie L. Whitney, Harry G. Nutter.

Boston, Mass.—Malley Motor Vehicle Co.; capital $50,000; incorporators, Charles A. Malley, M. Raymond Hatch.

Springfield, Mass.—Kutz Auto Tire Co.; capital $1,000,000; incorporated to manufacture woven leather tires for motor cars.

Westfield, Mass.—P. H. P. Motor Truck Co.; capital $25,000; incorporators, Ernest L. Hull, Ernest R. Pendleton, David C. Hull, Arthur B. Pendleton, Elmer H. Pendleton.

Syracuse, N. Y.—Lane Auto Association, Inc.; capital $10,000; to manufacture and deal in motor vehicles and storage; incorporators, Anna L. Lane, Bradley J. Lane, Earl R. Elmer.

Buffalo, N. Y.—Barrett Motor Car Co.; capital $10,000; to manufacture motor boats, motor cycles, vehicles, etc.; incorporators, Frank Barrett, 1450 Delaware avenue; Edward K. Meyer, 1312 Main street; Alexander G. Hoefler, 294 Conn street; Alfred A. Berrick, 1151 Main street; John F. Berrick, 1115 Main street; all of Buffalo.

New York—Eureka Safety Crank Co.; capital $50,000; to manufacture safety cranks for motors and engines; incorporators, Lyman Bartlett, Englewood, N. J.; George W. Peck, 1123 Broadway, New York City; Samuel L. Bevan, Orangeburg, N. Y.

New York—Cab and Taxi Co.; capital $1,700,000; livery business and motor service, acquire business of the above company; incorporators, G. H. Fitzgerald, Brooklyn; E. C. Kaestner, J. F. Manheimer, New York City.

New York—Overman Motorcycle Tire Co.; capital $25,000; to manufacture motorcycles and tires of all kinds; incorporators, J. J. Reilly, H. W. Torney, J. A. Baha, New York City.

Watertown, N. Y.—Watertown Transportation Co.; capital $25,000; to deal in motor buses, etc.; incorporators, D. M. Anderson, W. P. Herring, J. M. Gamble, Watertown.

New York—Hexter Motor Truck Co.; capital $10,000; to manufacture motor trucks, etc.; incorporators, Arthur A. Alexander, A. T. Rook, Maurice Milmet, 51 Chambers street, New York City.

Indianapolis, Ind.—Fashion Garage and Auto Co.; capital $10,000; to deal in and store motor cars; incorporator, J. F. Edwards.

Terre Haute, Ind.—Terre Haute Heavy Hardware Co.; capital $50,000; to deal in heavy hardware; incorporator, W. H. Yingling.

Chicago—W. A. Paterson Co.; capital $2,500; manufacturing and selling gasoline and electric motor cars; incorporators, Edgar C. Frady, William B. Herrick and Lyle A. Closter.

Rock Island, Ill.—Blackhawk Motor Co.; capital $50,000; to manufacture motors, motor cycles, etc.; incorporators, R. W. Gould, H. S. Dickinson of Moline and Leon Mitchell of Rock Island.

Adrian, Mich.—J. A. Thorson, of the advertising and publicity department of the United States Motor Co., has been appointed advertising manager for the Lion Motor Car Co. at Adrian.

Indianapolis, Ind.—E. L. Jones is now manager of the Remy branch house at Indianapolis, taking the place of John G. Wallick, who recently became manager of the Meridian Auto Co. at Indianapolis.

Pittsburg, Pa.—Additional room being required for garage purposes, the Joseph Horne Co. purchased the Painter property adjoining its holdings in Spahr street, East End. The company now owns 70 feet of frontage in this street.

Cincinnati, O.—The Oskamp Automobile Supply Co. has plans for and will erect a two-story building of brick, of 30 by 90 feet dimensions, on the property recently purchased by it on the northwest corner of Eighth avenue and Race street. The structure will be utilized as a branch of the present quarters at Seventh avenue and Race street.

Detroit, Mich.—Harry W. Anderson, for the past 2 years southern district manager of the Regal Motor Car Co., of Detroit, Mich., has cast his lot with the American Motors Co., of Indianapolis, Ind. He is the southern sales manager for the American company and will have charge of all business in the states of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Tennessee.

Mason City, Ia.—Extensive additions and improvements to the Colby motor car factory are to be made at once. An addition 300 feet by 400 feet is to be built.

Des Moines, Iowa—The Iowa Auto and Supply Co. has let the contract for a new two-story brick addition to its Fourth street garage and office. The addition will cost $20,000 and will give the company a total floor space of 30,000 feet. The Locust street repository of the company has been rented to C. F. Stewart, the new state manager of the Studebaker company, who has just opened offices here.

Detroit, Mich.—The Esterline Co., La Fayette, Ind., manufacturer of the Matchless lighting and ignition system, announces the appointment of Le Moyne L. Parkinson as district sales manager for the state of Michigan, with his office at Detroit. Mr. Parkinson leaves the Standard Underground Cable Co., Pittsburg, Pa., with which he has been associated for the past 5 years.

San Francisco, Cal.—Manager F. B. Keip, of the San Francisco branch of the Lozier company, reports the opening of permanent quarters at Van Ness and Golden Gate avenues. Another change in the trade of San Francisco is announced by L. J. Borie, western distributer for the Metz cars. A new building has been secured on Golden Gate avenue which will be occupied shortly.

Legal Lights and Side Lights

NOT HEEDING LIGHT LAW

JUDGING from what has happened since the new law went into effect in Massachusetts requiring all vehicles using the highways at night to carry lights the owners of horse-driven vehicles are totally ignoring the law. The motorists who have been out at night have found few horse-drawn vehicles with lights and many without them. The question of prosecution is somewhat unsettled because as the law does not require vehicles to use lights in cities or towns or where the highways are well lighted so the other highways are not policed, of course, and no one seems to know who will make the complaints.

If the police will prosecute such cases as come to their attention as they do the motor cases some headway will be made. Meanwhile there have been two accidents that could have been avoided had the vehicles been carrying lights according to law. In one of these a motor car figured, having come upon a carriage from around a bend, but at a place where the land was so low that had there been a light on the carriage it could have been seen some distance away. The occupants of the carriage were thrown out and hurt. In the other accident an electric stret car was traveling along and the motorman shut off his headlight as he saw a motor car coming. On the road were three teams. Two teams went to the right and the third to the left on the tracks of the street railway. Not having any lights on the vehicles, the motorman did not see them and he crashed into one team, severely injuring the driver.

This was a clear violation of the law on the part of the three drivers, but the police of the district have done nothing. Had the law been observed there would have been no accident. The motorists do not feel that they should take up the matter of law enforcement now, as it would seem like doing too much and also might engender more animosity toward them by other users of the highway.

FRENCH HELP TOURISTS

Instead of having to run 60 to 100 miles after landing in France before it was possible to get the international driving and car license, the French government has made such arrangements that this document can be given to American motorists immediately on landing at Havre, Cherbourg and St. Nazaire. America not having signed the international agreement, is unable to give its motorists an international car and driving license before leaving home, as is done by other nations. Consequently Americans arrive in the old world with their home numbers, and before starting out are obliged to comply with European regulations.

The ports at which American visitors usually land in France—Havre, Cherbourg and St. Nazaire—are sous-prefectures, and as only the prefect has the right to grant the international license, the motorists have been obliged to move on to Rouen, Saint-Lo or Nantes. A number, considering the matter of little importance, have traveled as far as Paris before applying for their international licenses, thus exposing themselves to action on the part of the police. The touring commission of the Automobile Club of France having pointed out the inconvenience of the arrangement, the government has given orders that in future the sous-prefects of Havre, Cherbourg and Saint-Nazaire shall be authorized to issue the international licenses, thus making it possible for motorists to be perfectly en règle before leaving these ports.

AFTER HOOSIER SCORCHERS

A determined fight against violators of the motor speed laws has been started in Indianapolis and is accomplishing results. The police department has purchased two additional motor cycles, making four such machines in the speed squad. All police motor cars, including patrol wagons, have been equipped with speedometers and instructions have been given that when violators are seen they shall be run down and arrested. James A. Collins, judge of the city police court, has fixed the minimum fine at $25 and costs, amounting to $35, and has ordered that no speed violators shall be released without giving $100 bond. In the past most of the violators have been allowed to go on their promise to appear in court.

MONTREAL FORBIDS SIRENS

The board of control of Montreal has taken action in regard to preventing motor cars which do not belong to corporation officials using siren horns. A communication was read from Fire Chief Tremblay that the general use of sirens made it impossible to distinguish between the ordinary car and those used in the fire service. It was decided by the board to ask the civic legislation committee to adopt a rule forbidding the use of sirens except on civic machines. A petition also was received by the board from a number of citizens asking that a law be passed forbidding motors to leave trails of smoke behind them.

NO FRANCHISE NEEDED

An opinion has been rendered by Joseph B. Kealing, corporation counsel, that motor car bus and taxicab lines do not need a franchise to operate in Indianapolis. He says the only authority needed is the annual vehicle tax. The opinion was rendered at the request of the Rapid Motor Transit Co., which, on September 1, will begin operating a line of motor buses in several Indianapolis streets.

WISCONSIN INDUSTRIAL INSURANCE

All of the big motor, motor car, parts and accessory manufacturers of Wisconsin are affected by the new industrial insurance or workingmen's compensation act of the last legislature, effective September 1. Manufacturers have the option of coming within or without the law, which provides for compensation for injuries or death of employes. Among the large concerns which have already elected to come within the law are: Thomas B. Jeffery Co., Kenosha, Wis., 1,200 workmen; Chicago Brass Co., Kenosha, 712 workmen; International Harvester Co., Milwaukee, 4,000 workmen. In all, about 12,000 employes are already amenable to the law under the acceptance of the act by employers. Under the terms of the act, however, employes who prefer not to accept the scheduled compensation and elect to be protected as at present, are allowed 30 days from the time of the employers' election to file their option not to become subject to the act. A large number of employers are awaiting developments in regard to the interpretation of the law by the state supreme court before electing to come within or without the provisions of the act. The big associations of manufacturers have started test cases and a decision is expected before January 1. Despite the fact that liability insurance companies will raise their rates, those manufacturers who are waiting will continue to seek their protection as they have done in the past. Much interest is being shown in the new law.

CLEARS UP LEGAL POINT

The motorists of Manitowoc, Wis., have scored a decided victory in their fight against alleged unjust ordinances, the main contention being against a city law prohibiting motorists passing horse-drawn vehicles on bridges and viaducts. Max Rahr, a prominent resident of Manitowoc, made himself defendant in the test case. Judge Chloupek, in discharging the case and setting Mr. Rahr free, says that all of the laws of state and country give motor vehicles equal rights on all thoroughfares and to discriminate against them on bridges is unreasonable and unfair. During the recent Wisconsin reliability tour a large number of contestants just escaped arrest under this ordinance while passing through Manitowoc, being in ignorance of the restriction.